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STUDIES OF SOUTH AMERICAN SENECIOS—II[1]

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The writer is fortunate in having had submitted to him for study relatively large series of undetermined specimens of South American Senecios, both from collections obtained on recent expeditions and also unidentified material of many years standing.

The United States National Herbarium, the New York Botanical Garden, the Field Museum of Natural History, the Gray Herbarium, the Philadelphia Academy of Natural Sciences, the British Museum of Natural History, the Kew Herbarium, the Botanical Garden, Brussells, the Botanical Garden and Museum, Berlin-Dahlem, the Museum of Natural History, Vienna, the Botanical Garden, Geneva, the Botanical Garden, Leiden, and the Botanical Garden, Utrecht, all have generously loaned unnamed material of *Senecio* for study. To those in charge of these herbaria, I extend sincere thanks.

The study of this great assemblage of *Senecio* has made it possible to identify many of the older and little-known species of this vast genus. It has been necessary to reduce to synonymy certain species and varieties, and to describe a few new species. It seems desirable and worth while to place on

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record some of the results of this taxonomic research—thus supplementing the paper[1] published fifteen years ago.

For the publication of this paper, I am indebted to Dr. George T. Moore, Director of the Missouri Botanical Garden.

Senecio aberrans Greenm. in Ann. Mo. Bot. Gard. **10**: 73. 1923.

COLOMBIA: "New Granada," Acaña, 10 July, 1845, *Purdie, s.n.* (Kew Hb.).

PERU: near Tarapota, coll. of 1855–56, *R. Spruce, s.n.* (Kew Hb.).

Senecio abietinus Willd. ex Wedd. Chlor. And. **1**: 100. 1855.

COLOMBIA: without definite localities, coll. of 1760–1808, *José Celestino Mutis,* nos. *286, 1785, 3027, 4811* (U. S. Nat. Hb.); Bogotá, Guadeloupe, without date, *Goudot,* no. *1* (Mus. Nat. Hist. Hb., Vienna, and Delessert Hb., Geneva); Bogotá, without date, *Linden,* no. *1250* (Delessert Hb.); Páramo de Usme, coll. of 1922, *Bro. Ariste-Joseph, s.n.* (U. S. Nat. Hb., sheet no. *1122518*).

Senecio adenotrichus DC. Prodr. **6**: 416. 1837; Greenm. in Ann. Mo. Bot. Gard. **10**: 75. 1923.

CHILE: San Felipe, Oct., 1923, and Dec., 1925, *Bro. Claude-Joseph,* nos. *2052* and *3821,* respectively (U. S. Nat. Hb.).

Senecio algens Wedd. Chlor. And. **1**: 104. 1855.

Senecio algens var. *major* Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only; Linnaea **34**: 531. 1866, name only.

Senecio algens var. *minor* Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only; Linnaea **34**: 530. 1866, name only.

BOLIVIA: vicinity of Sorata, alt. 4500–5000 m., April, 1860, *G. Mandon,* no. *129* (N. Y. Bot. Gard. Hb. and Mus. Nat. Hist. Hb., Vienna), *co-types* of var. *major;* vicinity of Sorata, alt. 3800–3900 m., Jan.–April, 1858, *G. Mandon,* no. *106* (N. Y. Bot. Gard. Hb. and Mus. Nat. Hist. Hb., Vienna), *co-types* of var. *minor.*

[1] Greenman, J. M. Studies of South American Senecios—I. Ann. Mo. Bot. Gard. **10**: 73–110, *pls. 3–8.* 1923.

These two varietal names were listed without descriptions, and thus represent *nomina nuda* without nomenclatorial status. A careful examination of duplicate material on which the varieties were founded shows that the plants concerned are merely very slight variations and the names should be merged in synonymy under the species.

Senecio (§ Streptothamni) Andrei Greenm., n.sp.

Frutex scandens glabrus; foliis petiolatis, ovatis vel lanceolato-ovatis, 2.5–5.5 cm. longis, 1–3 cm. latis, mucronato-acutis, remote denticulatis, basi cuneatis vel rotundatis, utrinque glabris, valde reticulato-venosis; inflorescentiis terminalibus; capitulis heterogamis, ca. 1 cm. altis; involucris anguste campanulatis, parce calyculatis; involucri bracteis 8, linearibus vel oblongo-lanceolatis, 4.5–5 mm. longis, glabris apice penicillato excepto, aliquanto venosis; floribus liguliferis 5, ligulis anguste oblongis, ca. 9 mm. longis, 1.5–2 mm. latis, pallido-flavis, tubo gracile, quam pappi setis breviore; floribus disci 15–20, flavis; achaeniis striatis, glabris.

Suffruticose, scandent, glabrous throughout; leaves petiolate, petioles 5–10 mm. long, blade ovate to lanceolate-ovate, 2.5–5.5 cm. long, 1–3 cm. broad, cuneate to rounded at the base, remotely and cartilaginously denticulate, mucronate-acute, glabrous on both surfaces, prominently netted-veined; inflorescence terminal; heads heterogamous, about 1 cm. high; involucre narrowly campanulate, sparingly calyculate; bracts of the involucre 8, linear to oblong-lanceolate, 4.5-5 mm. long, glabrous except at the penicillate tip, rather conspicuously veined; ray-flowers 5, rays narrowly oblong, about 9 mm. long, 1.5–2 mm. broad, pale yellow, tube slender and shorter than the pappus; disk-flowers 15 to 20, yellow; achenes striate, glabrous.

ECUADOR: Loja-Zamora, alt. 3000–3500 m., 1 Dec., 1876, *Ed. André*, no. *4520* (Gray Hb., TYPE, Kew Hb.).

This species is most closely related to *S. dictyophlebius* Greenm., from which it differs in having smaller heads, shorter involucral bracts, and a closer mesh of the leaf-venation.

Senecio apiculatus Schz. Bip. ex Wedd. Chlor. And. 1: 128. 1855.

Venezuela: Caracas, coll. of April, 1842, *Linden*, no. *478* (Mus. Nat. Hist. Hb., Vienna, and British Mus. Hb.); Paranadi la Culata, *Moritz*, no. *137* (British Mus. Hb.).

Senecio arboreus (HBK.) Greenm. in Ann. Mo. Bot. Gard. **10**: 77. 1923.

Cacalia arborea HBK. Nov. Gen. & Sp. Pl. **4**: 163. *pl. 359.* 1820.

Colombia: in mountains near Bogotá, 18 Nov., 1852, *Holton*, no. *247* [*347*] (N. Y. Bot. Gard. Hb.); Delicias, Popoyán, *Lehmann*, no. *B.T. 943* (Gray Hb., Field Mus. Hb., N. Y. Bot. Gard. Hb., and Leiden Hb.); same locality, *Lehmann*, no. *B.T. 946* (Gray Hb. and Leiden Hb.); Caucas, *Lehmann*, no. *B.T. 499* (N. Y. Bot. Gard. Hb.); head-waters of Rio Lopez, Rio Polo Basin, Tierra Adentro, alt. 2500–3000 m., Jan., 1906, *Pittier*, nos. *1083* and *1086* (U. S. Nat. Hb.); Old Quindio Trail, "Magana" to Quindio Pass, Dep't. of Caldas, *Hazen & Killip*, no. *9167* (U. S. Nat. Hb.); "in der oberes Waldregionen an der Östhängen der Central-Andes von Popayán," alt. 2800–3400 m., March–April, *Lehmann*, no. *5203* (Berlin Hb. and British Mus. Hb.).

Senecio arbutifolius HBK. Nov. Gen. & Sp. Pl. **4**: 182. 1820.

Colombia: coll. of 1760–1808, *José Celestino Mutis*, no. *648* (U. S. Nat. Hb.).

Senecio argenteus Kunze in Poepp. "Coll. Pl. Chil. 3, p. 192" [Coll. pl. exsic. Chil. 3, no. 192]; DC. Prodr. **6**: 415. 1837.

Chile: without definite locality, *Bertero*, no. *620* (Mo. Bot. Gard. Hb.); Terra Pehuerchium, Dec., 1854, *Lechler*, no. *2893* (Mus. Nat. Hist. Hb., Vienna); Cordillera de Maule, coll. of 1856–1857, *Germain, s.n.* (Mus. Nat. Hist. Hb., Vienna); ash-slope of Volcan Osorno, alt. 200–250 m., 13–15 Feb., 1925, *F. W. Pennell*, no. *12639* (Field Mus. Hb.).

Senecio Aschenbornianus Hieron. in Engl. Bot. Jahrb. **28**: 642. 1901.

Colombia: on trees in field, "Canaan," Mt. Purace, Dep't. of El Cauca, alt. 3100–3300 m., *Pennell & Killip*, no. *6509*; same locality, *Killip*, no. *6737* (U. S. Nat. Hb.).

Senecio attenuatus Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only; in Linnaea **34**: 531. 1866, name only; Rusby in Mem. Torr. Bot. Club **3**: 63. 1893.

BOLIVIA: La Paz, alt. 3750 m., 24 May, 1906, *O. Buchtien,* no. *73* (N. Y. Bot. Gard. Hb.); La Paz, alt. 3700 m., March, 1913, *O. Buchtien, s.n.* (Mo. Bot. Gard. Hb. and N. Y. Bot Gard. Hb.); La Paz, alt. 3800 m., 18 March, 1919, *O. Buchtien,* no. *380* (Mo. Bot. Gard. Hb.).

The specimens here cited give records of this species in addition to those recorded by Professor Rusby.

Senecio baccharidiflorus Rusby in Bull. N. Y. Bot. Gard. **4**: 397. 1907.

BOLIVIA: Unduavi, Sept., 1894, *M. Bang,* no. *2494* (N. Y. Bot. Gard. Hb.), TYPE; Unduavi, Noryungas, alt. 3300 m., Nov., 1910, *O. Buchtien,* nos. *3041* and *3042* (N. Y. Bot. Gard. Hb.); Gachapata, Aug., 1854, *Lechler,* no. *2608* (Kew Hb.).

Senecio bahioides Hook. & Arn. in Hook. Jour. Bot. **3**: 336. 1841, including *α lanosus* and β. *glaber.*

CHILE: Renca and Quintero, *Bridges,* no. *388* (Mus. Nat. Hist. Hb., Vienna); without definite locality, *Cuming,* no. *618* (Mus. Nat. Hist. Hb., Vienna).

Senecio bogotensis Spreng. Syst. **3**: 556. 1826; DC. Prodr. **6**: 423. 1837.

COLOMBIA: 100 miles northwest of Bogotá, region of La Chapon, State of Boyaca, alt. 4500 ft., 25 July, 1932, *A. E. Lawrance,* no. *356* (Mo. Bot. Gard. Hb.); in forest, Ibaque to Rio Coello, near Quindio Trail, Dep't. of Tolima, 6 Aug., 1912, *Tracy E. Hazen,* no. *9644* (U. S. Nat. Hb.).

Mr. Lawrance states that this plant is a "creeper, height [length] of 40–50 ft., diameter ½–1 inch, flowers red."

Senecio Bowmani R. E. Fries in Ark. för Bot. **5**[18]: 26, *pl. 2, figs. 6–11.* 1906.

ARGENTINA: Tucuman, Prov. of Tucuman, 8 Sept., 1908, *M. Lillo,* no. *8493* (Mo. Bot. Gard. Hb.); Parque, Aconquija, alt. 600 m., 21 Sept., 1917, *R. Schreiter,* no. *73* (Mo. Bot. Gard.

Hb.); Orilla del Basque, 29 Sept., 1924, *Venturi*, no. *2572* (Mo. Bot. Gard. Hb.); Sierra de la Candelaria, alt. 900 m., 6 Sept., 1929, *Venturi*, no. *9471* (Mo. Bot. Gard. Hb.).

Senecio brachycodon Baker in Mart. Fl. Bras. 6[3]: 319. 1884; Greenm. in Ann. Mo. Bot. Gard. **10**: 78. 1923.

Brazil: in wet woods, Itatiaya, State of Rio de Janeiro, alt. 2100 m., 18 March, 1922, *E. W. D. & Mary Holway*, no. *1865* (U. S. Nat. Hb.); in mossy fields above timber line, alt. 2100–2200 m., 30 April–4 May, 1925, *Agnes Chase*, no. *9684* (Mo. Bot. Gard. Hb.).

Senecio brachycodon Baker, *S. myriocephalus* Baker, *S. pellucidinervis* Schz. Bip., and *S. peregrinus* Griseb. constitute a complex which needs further study.

Senecio Brittonianus Hieron. in Engl. Bot. Jahrb. **29**: 72. 1900.

Senecio Sprucei Britton in Bull. Torr. Bot. Club **19**: 265. 1892, not *S. Sprucei* Klatt in Leopoldina **24**: 128. 1887.

Peru: "in montibus Maymensibus prope Tavalosus," July, 1856, *Spruce*, no. *4811* (Kew Hb., type, photograph in Mo. Bot. Gard. Hb.); "prope Tarapota, Peruviae orientales," coll. of 1855–1856, *Spruce*, no. *4811* (Brussels Hb. and Gray Hb.).

Bolivia: near Yungas, alt. 4000 ft., coll. of 1885, *Rusby*, no. *1695* (N. Y. Bot. Gard. Hb.); Mapiri, July–Aug., 1892, *Bang*, no. *1513* (N. Y. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., and Mo. Bot. Gard. Hb.); Santa Cruz, alt. 5000 ft., 24 Aug., 1902, *R. S. Williams*, no. *1457* (N. Y. Bot. Gard. Hb.); region of Mapiri, alt. 570–750 m., Sept. and Nov., 1907, *O. Buchtien*, nos. *1559* and *1560* (N. Y. Bot. Gard. Hb.).

Senecio canabinaefolius Hook. & Arn. in Hook. Jour. Bot. **3**: 341. 1841; Greenm. in Ann. Mo. Bot. Gard. **4**: 289. 1917.

Argentina: Cerro de Medina, Prov. of Tucuman, alt. 1600 m., 22 March, 1914, *Lillo*, no. *15976* (Mo. Bot. Gard. Hb.); El Suncha, alt. 2500 m., coll. of 1915, *Jörgensen*, no. *1083* (Mo. Bot. Gard. Hb.); La Hoyata, alt. 1300 m., 14 Dec., 1900, *Lillo*, no. *2611* (Mo. Bot. Gard. Hb.); Puerto Castil., Prov. of Salta, 24 Dec., 1929, *Venturi*, no. *1008* (Mo. Bot. Gard. Hb.).

Senecio chachapoyensis Greenm., n.sp.

Verisimiliter frutex; caulibus lignosis, striatis, fulvo-hirtello-papillosis; foliis alternis, petiolatis, oblongo-lanceolatis, 5–10 cm. longis, 1–3 cm. latis, basi in petiolum sensim angustatis, ad apicem acutis, denticulatis, utrinque glabris, subtus aliquanto pallidioribus conspicue venosisque, nervis lateralibus ab nervo medio latissime divergentibus; petiolis usque ad 1 cm. longis; inflorescentiis terminalibus, paniculatis, multicapitatis; capitulis parvis, ca. 5 mm. altis, homogamis; involucris anguste campanulatis, breviter calyculatis; involucri squamis 8, glabris; floribus disci ca. 10; achaeniis glabris.

Stem ligneous, striate, tawny, hirtellous-papillose; leaves oblong-lanceolate, including the slender petiole 5–10 cm. long, 1–3 cm. broad, narrowed at the base into a petiole (1 cm. or less in length), denticulate, acute, glabrous on both surfaces, somewhat paler and prominently veined beneath, the lateral veins forming almost a right angle with the midrib; inflorescence a terminal many-headed panicle; heads small, about 5 mm. high, homogamous; involucre cylindrical, short-calyculate; bracts of the involucre 8, glabrous; disk-flowers about 10; achenes glabrous.

PERU: "Chacapoyas" [Chachapoyas], coll. of 1835, *Alexander Mathews*, no. *1356* (Kew Hb., TYPE, photograph in Mo. Bot. Gard. Hb.).

The relationship of this species is with *S. theaefolius* Benth., *S. arboreus* (HBK.) Greenm., and *S. chaquiroensis* Greenm. From the first species it differs in having a hirtellous-papillose instead of a glabrous stem; and from the other two species mentioned it differs in having the lateral veins almost at right angles with the midrib.

Senecio (§ Streptothamni) dictyophlebius Greenm., n.sp.

Senecio volubilis Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only, and in Linnaea **34**: 531. 1866, name only, not *S. volubilis* Hook.

Frutex scandens; foliis alternis, petiolatis, ovatis vel ovato-oblongis, 2–6 cm. longis, 1.5–4 cm. latis, basi rotundatis vel subcordatis, integris aut crenato-dentatis, ad apicem acutis,

utrinque glabris, subtus pallidioribus et conspicue reticulato-venosis cum venis semipellucidis; petiolis usque ad 1 cm. longis; inflorescentiis terminalibus, subcorymboso-cymosis, paucicapitatis; capitulis heterogamis, radiatis, ca. 10–12 mm. altis; involucris anguste campanulatis, parce calyculatis, glabris; involucri squamis plerumque 8(8–13), linearibus vel lineari-oblongis, 7–8 mm. longis; floribus femineis 8–10, ligulatis, ligulis anguste oblongis, 6–7 mm. longis, flavis; floribus disci 15–20; achaeniis glabris.

Stem scandent, ligneous; leaves alternate, petiolate, ovate to ovate-oblong, 2–6 cm. long, 1.5–4 cm. broad, rounded to subcordate at the base, entire to sparingly crenate-dentate, glabrous on both surfaces, paler and rather conspicuously netted-veined beneath, veins semipellucid; petioles 1 cm. or less in length; inflorescence terminating the stem and branches in few-headed subcorymbose cymes; heads heterogamous, radiate, about 10–12 mm. high; involucre narrowly campanulate, sparingly calyculate, glabrous; bracts of the involucre usually 8 (8–13), linear to linear-oblong, 7–8 mm. long; ray flowers 8–10, rays narrowly oblong, 6–7 mm. long, yellow; disk-flowers 15–20; achenes glabrous.

Bolivia: vicinity of Sorata, alt. 3400 m., 31 Dec., 1858, *G. Mandon,* no. *146* (Kew Hb., type, Delessert Hb., Geneva, Brussels Hb., Mus. Nat. Hist. Hb., Vienna, and N. Y. Bot. Gard. Hb., photograph of type in Mo. Bot. Gard. Hb.).

Several collections of this species were made by Mandon in the vicinity of Sorata, Bolivia, at altitudes from 3000 to 3400 meters above sea-level, during the years 1857 to 1859. These plants will be found in many herbaria under the name "*Senecio volubilis* Hooker," and most of them bear the number *146*. *Senecio volubilis* Hooker, however, belongs to quite another natural group of species.

Senecio ellipticifolius Hieron. in Engl. Bot. Jahrb. **28**: 637. 1901.

Colombia: region of Popayán, alt. 2600–3200 m., *F. C. Lehmann,* no. *8508* (Berlin Hb., photograph and fragment in Mo. Bot. Gard. Hb.); S. Antonio, *Ed. André,* no. *K 1293* (Kew Hb.

and N. Y. Bot. Gard. Hb.); Viejes Ocaña, 29 March, 1876, *Ed. André*, no. *K 1294* (Kew Hb.); 100 miles northwest of Bogotá, region of Upper Chapon, state of Boyaca, alt. 6500 ft., 8 Aug., 1932, *Alexander E. Lawrance*, no. *398* (Mo. Bot. Gard. Hb.).

Senecio ellipticus DC. Prodr. **6**: 420. 1837; Mart. Fl. Bras. 6^3: 318. 1884.

Brazil: without specific locality, *collector unknown*, no. *148* (Mo. Bot. Gard. Hb.); Serro do Mar, *Dusén*, nos. *635a* and *10160* (Mo. Bot. Gard. Hb.); Campo Grande, São Paulo, *Brade*, no. *6645* [*Hoehne* no. *6712*] (Mo. Bot. Gard. Hb.); vicinity of Itatiaya, *Rose & Russell*, no. *20542* (U. S. Nat. Hb.).

Senecio eristhalifolius Schz. Bip. ex Baker in Mart. Fl. Bras. 6^3: 321, *pl. 87*. 1884.

Brazil: Juiz de Fóra, Minas Geraes, alt. 700 m., 23 Feb., 1925, *Agnes Chase*, no. *8613* (Mo. Bot. Gard. Hb.).

Senecio evacoides Schz. Bip. in Bonplandia **4**: 55. 1856, name only; Wedd. Chlor. And. **1**: 105. 1855, with description; Gray in Proc. Am. Acad. **5**: 143. 1861.

Peru: "an sommet de Cordillére d'Ayapata, Prov. de Carabaya," alt. 4500 m., *Lechler, s.n.* (Berlin Hb.); Casa Caucha, Alpamarca, alt. 10000–16000 ft., *U. S. Exploring Expedition under command of Capt. Wilkes, s.n.* (U. S. Nat. Hb.); Andes of Peru, alt. 15000 ft., *Lobb, s.n.* (British Mus. Hb.); without definite locality, coll. of 1865–1867, *Richard Pearce, s.n.* (British Mus. Hb.); "Patagonia," *Lobb* (British Mus. Hb.).

Senecio Georgianus Greenm., n. name.

Senecio Hallii Hieron. in Engl. Bot. Jahrb. **21**: 358. 1895, including forma α and forma β, not *S. Hallii* Britt. in Trans. N. Y. Acad. Sci. **9**: 11. 1889.

Ecuador: "Calcitpungo, in Páramo del Alao haud procul ab urbe Riobamba," alt. 4200 m., Nov., 1872, *A. Stübel*, no. *259* (Berlin Hb.).

Senecio Greenmanianus Hieron. in Engl. Bot. Jahrb. **28**: 643. 1901.

Venezuela: Merida, *Moritz*, no. *1384* (Berlin Hb., type,

photograph and fragment in Mo. Bot. Gard. Hb.); Quebrada el Yoyo, Merida, alt. 3800 m., 12 April, 1930, *Gehriger*, nos. *71* and *72* (Mo. Bot. Gard. Hb.); Laguna Mucuy, Merida, alt. 4200–4300 m., 19 April, 1930, *Gehriger*, no. *94* (Mo. Bot. Gard. Hb.); Páramo de Sumusica, State of Táchira, alt. 3100 m., 19 Jan., 1912, *Alfredo Jahn*, no. *51* (U. S. Nat. Hb.); Páramo Quiorá, alt. 3224 m., 8 Oct., 1921, *Alfredo Jahn*, no. *732* (U. S. Nat. Hb.).

Senecio Gürkei Hieron. in Engl. Bot. Jahrb. **28**: 646. 1901.

COLOMBIA: "Nova Granata," *Triana* (Berlin Hb.), TYPE; Mediacion-Quindio, 7 March, 1876, *Ed. André*, no. *2143* (Kew Hb., Field Mus. Hb.).

The André specimen in the Kew Herbarium is accompanied by a field label on which is written the following note: "Arbor cic.—3ª alt. flor. lutei." The species bears some resemblance to *Senecio grandifolius* Less.

Senecio Hillii Greenm., n. sp.

Frutex scandens; caulibus ramisque striatis, floccoso-tomentosis; foliis alternis, petiolatis, lanceolato-ellipticis, 5–10 cm. longis, 2–4.5 cm. latis, obtusis, integris et marginibus revolutis, juventate supra sparse tomentulosis sed mox glabratis, subtus dense et persistenter floccoso-tomentosis; petiolis 5–8 mm. longis; inflorescentiis terminalibus, paniculatis, pluri-capitatis; capitulis heterogamis, subdiscoideis, 10–13 mm. altis; involucris campanulatis, valde calyculatis, bracteolis plerumque 5, elliptico-ovatis, 5–7 mm. longis, 2–3 mm. latis; involucri squamis oblongo-lanceolatis, 6–7 mm. longis, 2–3.5 mm. latis, involucri squamis bracteolisque valde et permanenter tomentosis; capituli floribus exterioribus (10–12) multo reducti, gracilibus, curvatis, inequaliter 3–5-dentatis, dentibus angustis, crassiusculis, obtusis; capituli floribus interioribus ca. 40, corollis tubulo-campanulatis, equaliter 5-dentatis; pappi setis albidis quam corollis disci brevioribus; achaeniis glabris.

Stem scandent, branched, ligneous, striate, floccose-tomentose; leaves alternate, petiolate, lanceolate-elliptic, 5–10 cm. long, 2–4.5 cm. broad, obtuse, entire, revolute-margined,

slightly tomentulose in the early stages but soon glabrate above, densely and permanently floccose-tomentose beneath; petioles 5–8 mm. long; inflorescence a terminal many-headed panicle; heads heterogamous, subdiscoid, 10–13 mm. high; involucre campanulate, conspicuously calyculate with few (about 5) elliptic-ovate 5–7 mm. long and 2–3 mm. broad bracteoles; bracts of the involucre oblong-lanceolate, 6–7 mm. long, 2–3.5 mm. broad, bracts and bracteoles densely and permanently floccose-tomentose; outermost flowers of the head (10–12) reduced, subradiate, corolla tubular, slender, curved, unequally 3–5-dentate, teeth narrow, more or less thickened at the obtuse apex; disk-flowers about 40, corollas tubular-campanulate, equally 5-toothed; pappus white, shorter than the corolla; achenes glabrous.

Ecuador: "in monte Titaicun," alt. 11000 ft., Nov., 1858, *R. Spruce,* no. *5587* (Kew Hb., type, British Mus. Hb., Gray Hb.).

This species has the habit of *Senecio disciformis* Hieron., to which it is evidently closely related, but it differs from that species in having larger and fewer heads, broader involucral bracts and bracteoles, and longer peduncles.

It is a pleasure to name this plant in honor of Sir Arthur W. Hill, Director of the Royal Botanic Gardens, Kew, England.

Senecio Hypsobates Wedd. Chlor. And. **1**: 91. 1855.

Colombia: Dep't. of Caldas, Páramo del Quindio, Cordillera Central, alt. 3700–4400 m., 13 Aug., 1922, *Francis W. Pennell,* no. *9804* (U. S. Nat. Hb.); same locality, 15–20 Aug., 1922, *Francis W. Pennell & Tracy Hazen,* no. *10008* (U. S. Nat. Hb.).

A specimen collected at Azufral (probably Colombia) by *Ed. André,* no. *K1291* (N. Y. Bot. Gard. Hb.) is unquestionably also conspecific.

Senecio Klattii Greenm. in Ann. Mo. Bot. Gard. **1**: 281. 1914.

S. roseus Klatt in Ann. k.k. Naturhist. Hofmus. Wien **9**: 366. 1894, not *S. roseus* Schz. Bip. in Flora **28**: 498. 1845.

Peru: without specific locality, *Besser, s.n.* (Berlin Hb., photograph in Mo. Bot. Gard. Hb.); Mt. Tunari, coll. of 1891,

Bang, no. *1046* (N. Y. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., and Mo. Bot. Gard. Hb.).

Senecio Klugii Greenm., n. sp.

Frutex erectus, 3 m. altus; ramis ramulisque brunneis, striatis, albo-tomentulosis; foliis alternis, petiolatis, elliptico-lanceolatis aut elliptico-oblanceolatis, 10–15 cm. longis, 3–6 cm. latis, basi integris cuneatisque, sinuato-serrato-denticulatis, breviter acuminatis, utrinque arachnoideo-tomentulosis, plus minusve glabratis, subtus prominenter venosis; inflorescentiis terminalibus, strictis, paniculato-cymosis; capitulis heterogamis, ca. 12 mm. altis, radiatis; involucris campanulatis, calyculatis; involucri squamis plerumque 13, linearibus vel oblongo-lanceolatis, 6–7 mm. longis, flocculoso-tomentulosis; floribus femineis 10–13, ligulatis, ligulis anguste oblongis, 10–13 mm. longis, flavis; floribus disci 30–40, flavis; achaeniis glabris.

Shrub, 3 m. high; branches brownish, striate, white-tomentulose; leaves petiolate, petioles 5–12 mm. long, leaf-blade obovate-lanceolate to elliptic-lanceolate, 1–1.5 dm. long, cuneate, usually entire towards the base, sinuate-dentate to serrulate towards the acuminate acute apex, arachnoid-tomentulose on both surfaces in the younger stages, more or less glabrate except on the midrib and lateral veins, rather prominently veined beneath; inflorescence a terminal strict paniculate cyme; bracts of the inflorescence linear-attenuate; heads heterogamous, about 12 mm. high, radiate; involucre campanulate, calyculate; bracts of the involucre 13, linear to narrowly oblong-lanceolate, 6–7 mm. long, flocculose-tomentulose; ray-flowers 10–13, rays narrowly oblong, 10–13 mm. long, yellow; disk-flowers 30–40, yellow; achenes glabrous.

Peru: mountain forest, Zepelacio, near Moyobamba, Dep't. of San Martin, alt. 1200–1600 m., Dec., 1933, *G. Klug*, no. *3466* (Mo. Bot. Gard. Hb. and U. S. Nat. Hb.), type; without definite locality, coll. of 1835, *A. Mathews, s.n.* (Kew Hb.).

This species in general habit, particularly in the strict character of the inflorescence, resembles *S. aberrans* Greenm., *S. coroicensis* Rusby, and *S. yungacensis* Britton; but it is readily

distinguished from the first by having a shorter involucre, and from the other two species by characters of the pubescence.

Senecio laricifolius HBK. Nov. Gen. & Sp. Pl. **4**: 185. 1820; DC. Prodr. **6**: 424. 1837.

S. morrensis Hieron. in Engl. Bot. Jahrb. **21**: 362. 1895.

PERU: Dep't. of San Martin, Zepelacio, near Moyobamba, mountain forest, alt. 1200–1600 m., Oct., 1933, *G. Klug*, no. *3279* (Mo. Bot. Gard. Hb.).

Although the writer has not examined the original or type specimen of this species, yet the collection cited above agrees in all details with the published descriptions, and there can be no doubt of the identity.

Senecio ledifolius (HBK.) DC. Prodr. **6**: 421. 1837.

Senecio vernicosus var. *microphyllus* Wedd. Chlor. And. **1**: 94. 1855.

COLOMBIA: Volcan de Tolima, alt. 4000–4300 m., *Linden*, no. *899* (Mus. Nat. Hist. Hb., Vienna); grassy páramo, alt. 4100–4400 m., 15–20 Aug., 1922, *Pennell & Hazen*, no. *9836* (U. S. Nat. Hb.).

Senecio Lindenii Schz. Bip. ex Wedd. Chlor. And. **1**: 101. 1855.

Senecio ledifolius β *Schlimii* Wedd. Chlor. And. **1**: 94. 1855.

COLOMBIA: without definite locality, coll. of 1842, *Linden*, nos. *721*, *735*, and *1248* (Mus. Nat. Hist. Hb., Vienna); without definite locality, *Linden, s.n.* (N. Y. Bot. Gard. Hb.); Bogotá, coll. of 1917, *Bro. Ariste-Joseph*, no. *A 13* (U. S. Nat. Hb.); Guadalupe, near Bogotá, *Bro. Ariste-Joseph*, no. *A.122* (U. S. Nat. Hb.); mountains east of Las Vegas, Dep't. of Santander, alt. 3000–3300 m., 20–21 Dec., 1926, *Killip & Smith*, no. *15823* (Mo. Bot. Gard. Hb.); vicinity of California, alt. 3000 m., 11–27 Jan., 1927, *Killip & Smith*, no. *16906* (Mo. Bot. Gard. Hb.); western slope of Páramo Rico, alt. 3000–3600 m., 15–19 Jan., 1927, *Killip & Smith*, no. *17214* (Mo. Bot. Gard. Hb.); vicinity of Vetas, 16–20 Jan., 1927, *Killip & Smith*, no. *17268* (Mo. Bot. Gard. Hb.); Páramento de las Puentes, above La Baja, alt. 3500–3700 m., 25 Jan., 1927, *Killip & Smith*, no. *18207* (Mo. Bot.

Gard. Hb.); Páramo de las Coloradas, above La Baja, alt. 3000–4100 m., 27 Jan., 1927, *Killip & Smith,* no. *18429* (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.); Páramo de Romeral, alt. 3800–4100 m., 29–30 Jan., 1927, *Killip & Smith,* no. *18561* (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.); La Baja, Prov. of Pamplona, alt. 8000–9000 ft., *Funck & Schlim,* no. *1291* (Brussels Hb.).

Senecio Macbridei Greenm., n. sp.

Herbaceus perennis, arboreus, 1.5 m. altus; ramis fusco-brunneis, aliquanto striatis, sparse hirtellis aut glabris; foliis alternis, petiolatis, oblongo-lanceolatis vel elliptico-lanceolatis, 6.5–15 cm. longis, 2–6 cm. latis, acuminatis, acutis, integris vel paulo dentatis, basi rotundatis vel subcordatis, utrinque glabris, nervis supra leviter canaliculatis subtus prominenter reticulatis; petiolis 0.5–1.5 cm. longis, pubescentibus; inflorescentiis terminalibus axillaribusque, paniculatis; capitulis heterogamis, 12–14 mm. altis; involucris anguste campanulatis, brevi-calyculatis, glabris; involucri squamis 13, lineari-lanceolatis, 7–8 mm. longis, 1–2 mm. latis; floribus femineis 6–8, ligulis ca. 3 mm. longis, flavis; floribus disci 12–15; achaeniis glabris.

Shrub or stout herb, 1.5 m. high; branches reddish-brown, somewhat striate, sparingly hirtellous to glabrous; leaves alternate, petiolate, oblong-lanceolate to elliptic-lanceolate, 6.5–15 cm. long, 2–6 cm. broad, acuminate, acute, entire to sparingly denticulate, rounded to subcordate at the base, glabrous on both surfaces, veins sunken above, prominently and strongly reticulated beneath; petioles 0.5–1.5 cm. long, pubescent; inflorescence in terminal and axillary panicles; heads heterogamous, 12–14 mm. high; involucre narrowly campanulate, short-calyculate, glabrous; bracts of the involucre about 13, linear-lanceolate, 7–8 mm. long, 1–2 mm. broad; ray-flowers 6–8, rays short, about 3 mm. long; disk-flowers 12–15; achenes glabrous.

Peru: in shrubs along gravelly stream-course, La Merced, alt. about 2000 ft., 10–24 Aug., 1923, *J. Francis Macbride,* no. *5254* (Field Mus. Hb. and Mo. Bot. Gard. Hb.), type.

This species resembles *Senecio semidentatus* Klatt, to which it is unquestionably closely related; it differs, however, in hav-

ing longer and more slender petioles, narrower involucral bracts, shorter bracteoles, and smaller ray-flowers.

Senecio magellanicus Hook. & Arn. in Hook. Jour. Bot. **3**: 343. 1841.

Culcitium magellanicum Hombr. & Jacquem. ex Decne. Bot. Voy. Astrol. et Zél., p. 43. 1853; D'Urville, Voy. Pole Sud. & Océanie, Atlas, Dicot., *t. 11, figs. X.* 1852.

ARGENTINA: "Terres Magellanique," *Lechler* [*A. Lenormand mis.* 1857] (Mo. Bot. Gard. Hb.); Punta Arenas, 10 Feb., 1857, *Lud. Savatier,* no. *82* (Kew Hb.).

Senecio Magnusii Hieron. in Engl. Bot. Jahrb. **28**: 642. 1901; Greenm. in Ann. Mo. Bot. Gard. **10**: 85. 1923.

COLOMBIA: without specific locality, coll. of 1892, *Triana,* no. *1486* (Berlin Hb., TYPE, fragments and photograph in Mo. Bot. Gard. Hb.); mountain east of Las Vegas, alt. 3000–3330 m., 20–21 Dec., 1926, *Killip & Smith,* no. *15781* (Mo. Bot. Gard. Hb.).

Senecio melanolepis DC. Prodr. **6**: 424. 1837; Wedd. Chlor. And. **1**: 130. 1855.

This little-known species appears to be well marked by the linear to linear-lanceolate revolute-margined leaves, the radiate heads, and conspicuously black-tipped bracts of the inflorescence, and of the bracts and bracteoles of the involucre. It is well represented by two specimens in the Kew Herbarium which bear the label, "Peruvia. Herb. Pavon. Comm. W. Barbey 7/1888." These specimens agree in all essential details with the original description by De Candolle, and with Weddell's characterization of the species.

Senecio Millei Greenm., n.sp.

Verisimiliter frutex; caulibus foliaceis, brunneis, striatis, juventate floccoso-tomentulosis, denique plus minusve glabratis; foliis crebris, alternis, petiolatis, elliptico-ovatis, 3.5–6 cm. longis, 1.5–3 cm. latis, mucronato-acutis, calloso-denticulatis, utrinque floccoso-tomentulosis, plus minusve glabratis, atro-viridibus et crebre reticulato-venosis, venis lateralibus subtus arcuato-connatis; inflorescentiis terminalibus, thyr-

soideo-paniculatis, multi-capitatis; capitulis 5–6 mm. altis, homogamis; involucris campanulatis, calyculatis; involucri bracteis 8, ca. 3.5 mm. longis, flocculoso-pubescentibus, aliquanto glabratis; floribus disci 12–15; achaeniis glabris.

Suffruticose; stem leafy, brownish, striate, floccose-tomentulose, more or less glabrate; leaves crowded, petiolate, elliptic-ovate, 3.5–6 cm. long, 1.5–3 cm. broad, mucronate-acute, rather closely cartilaginous-denticulate, floccose-tomentulose on both surfaces, more or less glabrate, dark green, closely reticulate-veined, lateral veins prominent and conspicuously arcuate-anastomose beneath; inflorescence a terminal many-headed thyrsoidal panicle; heads sessile, small, 5–6 mm. high, homogamous; involucre campanulate, calyculate; bracts of the involucre 8, about 3.5 mm. long, lightly flocculent-pubescent, more or less glabrate; flowers discoid, 12–15; achenes glabrous.

Ecuador: Loja, coll. of Aug., 1847, *Seemann, s.n.* (Kew Hb.), type.

This species is named in honor of Rev. Father Luis Mille, a distinguished botanist of Ecuador; it is related to *Senecio theaefolius* Benth., from which, however, it differs in having a more pronounced reticulate leaf-venation, shorter involucral bracts, and a flocculent tomentum on stem and leaves.

Senecio Millei suggests also a relationship with *S. Brittonianus* Hieron., particularly in the characters of the inflorescence and tomentum; but it differs in having smaller and discoid instead of radiate heads, smaller and distinctly denticulate leaves with a close but conspicuous leaf-venation.

Senecio modestus Wedd. Chlor. And. 1: 105, *pl. 18, fig. B.* 1855.

Bolivia: without specific locality, *Bang,* no. *1890* (Mo. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., Gray Hb., U. S. Nat. Hb., Mus. Nat. Hist. Hb., Vienna); near Luipichi, 9 Sept., 1901, *R. S. Williams,* no. *836* (N. Y. Bot. Gard. Hb.).

Peru: Viso, in shallow soil, on rocks, alt. 9000 ft., 5–14 May, 1922, *Macbride & Featherstone,* no. *610* (Field Mus. Hb.).

Senecio nevadensis Schz. Bip. ex Wedd. Chlor. And. 1: 97. 1855.

VENEZUELA: Páramo de la Culata, *Moritz,* no. *1383* (Bot. Mus. Hamburg Hb.); Michuntuy, Culata Range, Merida, alt. 4000 m., 17 Dec., 1910, *Alfredo Jahn,* no. *131a* (U. S. Nat. Hb.).

Senecio octophyllus Schz. Bip. in Linnaea **34**: 531. 1866, name only; Rusby in Bull. N. Y. Bot. Gard. **4**: 393. 1907, with description.

Senecio olophyllus Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only.

BOLIVIA: vicinity of Sorata, alt. 3400–3900 m., Feb.–March, 1859, *Mandon,* no. *118* (N. Y. Bot. Gard. Hb.); without definite locality or date of collection, *Bang, s.n.* (N. Y. Bot. Gard. Hb.).

PERU: Nevado de Chachani, Dep't. of Arequipa, rock-clefts in open valley, alt. 4100–4200 m., April, 1925, *Pennell,* no. *13296* (Field Mus. Hb.).

The name originally ascribed to Mandon's no. *118* by Schultz Bipontinus in the 'Bulletin de la Société Botanique de France' in 1865 was *"Senecio olophyllus";* but no description of it was given. In 'Linnaea' of 1866, Mandon's no. *118* was listed as *"Senecio octophyllus,"* again without description.

The change of specific name was probably due to a typographical error, since the plant is very leafy and the leaves are densely whitish tomentose. The original specific name was doubtless intended to carry the connotation of *silver-leaved,* not *eight-leaved.* However, the combination *Senecio octophyllus* was validated through the publication of a description by Professor Rusby in the 'Bulletin of the New York Botanical Garden' in 1907; thus, in accordance with present rules of botanical nomenclature, *Senecio octophyllus* becomes the correct binomial for this plant, and the original name *"Senecio olophyllus"* falls to synonmy, as a *nomen nudum.*

Senecio pachypus Greenm., n.sp.

Frutex; cauli tereti, aliquanto irregulariter sed plus minusve di–trichotomoso-ramoso, juventate fulvo-hirsuto deinde glabrato sed subcicatricoso; foliis crebris, brevi-petiolatis, oblongo vel oblongo-ellipticis, 5–10 mm. longis, 3–6 mm. latis, obtusis, proxime et regulariter crenato-dentatis, in sinis marginatis foliorum paululo pubescentibus, basi in petiolum subito

contractis, utrinque glabris, supra plus minusve lucidis, subtus livido-viridibus; petiolis usque ad 2 mm. longis, subcoriaceis et persistentibus; inflorescentiis terminalibus, corymboso-cymosis, pauci-capitatis; capitulis heterogamis, radiatis; involucris campanulatis, calyculatis, bracteolis subcoriaceis ciliatisque; involucri squamis plerumque 13, lineari-lanceolatis, 4–5 mm. longis; floribus femineis ligulatis, ca. 8, ligulis pallide flavis; floribus disci 20–22; achaeniis glabris.

Shrub; stem somewhat irregularly branched, more or less di–trichotomous, tawny-pubescent with coarse stiff hairs, slightly roughened by the persistent cartilaginous-thickened remains of the petioles; leaves crowded, short-petiolate, oblong to oblong-elliptic, 5–10 mm. long, 3–6 mm. broad, obtuse, closely and regularly crenate-dentate, abruptly contracted at the base into a relatively broad 1–2 mm. long petiole, glabrous except for tufts of minute dark hairs in the leaf-sinuses and scattered hairs on the sunken midrib, more or less lucid above, dull green beneath; inflorescence terminating the stem and branches in few-headed round-topped corymbose cymes; heads heterogamous, radiate; involucre campanulate, calyculate with rather broad thickish ciliolate bracteoles; bracts of the involucre 13, linear-lanceolate, 4–5 mm. long; ray-flowers 8, rays lemon yellow; disk-flowers 20–22; achenes glabrous.

Venezuela: in Colorado forest, Páramos de Laguna Grande, Merida, 21 Jan., 1929, *H. Pittier,* no. *13243* (Mo. Bot. Gard. Hb., type); Páramo Quirorá, alt. 3200 m., 9 Oct., 1921, *Alfredo Jahn,* no. *709* (U. S. Nat. Hb.); Páramo del Molino, Merida, alt. 2600 m., *Alfredo Jahn,* no. *953* (U. S. Nat. Hb.); "entre las Lagunas El Yoho y de Barrios," alt. 4000–4150 m., Merida, 19 April, 1930, *Gehriger,* no. *88* (Mo. Bot. Gard. Hb.); Páramo de Tuñame, alt. 3280 m., 24 Nov., 1910, *Alfredo Jahn,* no. *60* (U. S. Nat. Hb.).

The last specimen cited has more or less ciliated leaves; but it probably represents only a slight variation of the species.

Senecio Pampae Lingelsheim in Fedde, Rep. Nov. Sp. **8**: 6. 1910.

Bolivia: Pazna, 18½° S. latitude, alt. 4000 m., May, 1908,

Otto Buchtien, no. *1582* (Berlin Hb., N. Y. Bot. Gard. Hb., fragment and photograph Mo. Bot. Gard. Hb.); near summit of pass, Oruro-Cochabamba Railway, 16 March, 1920, *E. W. D. & Mary Holway*, no. *414* (U. S. Nat. Hb.); Cuchichanchi, alt. 3200 m., 21 July, 1929, *José Steinbach*, no. *9873* (Mo. Bot. Gard. Hb.).

ARGENTINA: Maimara, Prov. of Jujuy, 20 Jan., 1906, *ex Hb. Lillo*, no. *4917* (Mo. Bot. Gard. Hb.); between rocks, Prov. of Tucuman, alt. 3200 m., 4 April, 1901, *Lillo, s.n.* (Mo. Bot. Gard. Hb.); Olfarcito, Prov. of Jujuy, alt. 2650 m., 30 Sept., 1925, *Pereyra*, no. *5825* (Mo. Bot. Gard. Hb.).

Senecio pellucidinervis Schz. Bip. ex Baker in Mart. Fl. Bras. **6**[3]: 319. 1884; Greenm. in Ann. Mo. Bot. Gard. **10**: 88. 1923.

BRAZIL: Campos do Jordão, *Löfgren* [*Hoehne*], no. *16955* (Mo. Bot. Gard. Hb.); Campos do Jordão, Sierra Mantiquera, São Paulo, 20–22 May, 1925, *Agnes Chase*, no. *9884* (Mo. Bot. Gard. Hb.); Itatiaya, *Brade & Tomandari*, no. *6390* [*Hoehne*, no. *6280*] (Mo. Bot. Gard. Hb.).

Senecio pensilis Greenm., n. sp.

Herbaceus perennis, ubique albo-tomentosis; caulibus gracilibus, 2–6 dm. longis, plus minusve pendentibus, ad apicem aliquanto ascendentibus; foliis alternis, petiolatis, lanceolato-ovatis, 1–3.5 cm. longis, 0.5–2 cm. latis, basi cuneatis vel subtruncatis, subintegris aut dentatis, acutis, supra arachnoideo-tomentulosis, subtus dense albo-tomentosis; petiolis gracilibus paulo marginatisque, 0.5–1.5 cm. longis, basi frequenter inconspicueque aliquanto amplexicaulibus; inflorescentiis terminalibus, longi-pedunculatis, plus minusve nutantibus, corymboso-cymosis; capitulis ca. 1 cm. altis, heterogamis, ligulatis; involucris calyculatis; involucri squamis ca. 21, ad apicem subglabris purpurascentibusque, ceteris albo-tomentosis; floribus femineis ca. 8, ligulis flavis; floribus disci 40–60; achaeniis glabris.

Suffruticose, white-tomentose throughout; stems slender, 2–6 dm. long, more or less pendent, somewhat ascending at the tips; leaves petiolate, lanceolate-ovate, 1–3.5 cm. long, 0.5–2

cm. broad, cuneate to subtruncate at the base, subentire to dentate, acute, arachnoid-tomentulose above, densely white-tomentose beneath; petioles slender and slightly margined by the decurrence of the leaf-blade, 0.5–1.5 cm. long, often inconspicuously auriculate and somewhat amplexicaul at the base; inflorescence terminating the stem and branches on nearly naked long-pedunculate more or less nodding corymbose cymes; heads about 1 cm. high, heterogamous, radiate; involucre calyculate; bracts of the involucre about 21, white-tomentulose except at the purplish tip; ray-flowers about 8, rays yellow; disk-flowers 40–60; achenes glabrous.

Bolivia: "Pelechuco," alt. 12000–14000 ft., March and May, 1865, *R. Pearce, s.n.* (Kew Hb., type, British Mus. Hb.).

Peru: Vilcacota, July, 1833, *Alexander Mathews,* no. *1131* (Kew Hb.); Rio Blanco, alt. 15000 ft., May 8–19, 1922, *Macbride & Featherstone,* no. *796* (Field Mus. Hb.).

According to Macbride and Featherstone, this plant grows in a rather unusual habitat, namely, "pendant from canyon rock crevices."

Senecio pericaulis Greenm. in Ann. Mo. Bot. Gard. **10**: 89. 1923.

In addition to the specimens recorded in the above publication, the following collections are referred to this species:

Ecuador: hills near Cuenca, date of collection not indicated, *Jameson,* no. *26* (Kew Hb.); base of Pilzheim, alt. 12000 ft., without date, *Jameson, s.n.* (Kew Hb.); Pichincha, alt. 13000 ft., *Jameson, s.n.* (Mus. Nat. Hist. Hb., Vienna, sheet no. *122720*).

Senecio pichinchensis Greenm., n.sp.

Frutex; ramis ramulisque juventate hirsuto-pubescentibus, denique aliquod glabratis; foliis alternis, petiolatis, oblongo-ovatis aut subrotundatis, 5–10 mm. longis, 3–10 mm. latis, apici obtusis aut rotundatis, 3–5-crenato-dentatis, plus minusve revoluto-marginatis, utrinque glabris, subcoriaceis, nervo medio et nervis lateralibus supra depressis, subtus prominulis; petiolis 1–2 mm. longis, basi plus minusve persistentibus; inflores-

centiis terminalibus, paniculato-cymosis; capitulis heterogamis, 10–12 mm. altis, radiatis; involucris campanulatis, conspicue bracteolatis, bracteolis linearibus, patentibus; involucri squamis plerumque 13, lineari-lanceolatis, ca. 6 mm. longis, extrinsecus glabris, apici penicillatis; floribus femineis 8, ligulatis, ligulis anguste oblongis, ca. 7 mm. longis, 2–2.5 mm. latis, flavis; floribus disci 13–16; achaeniis glabris.

Shrub; stem and branches in the earlier stages hirsute-pubescent, later somewhat glabrate; leaves alternate, petiolate, oblong-ovate to subrotund, 5–10 mm. long, 3–10 mm. broad, obtuse or rounded at the apex, crenate-dentate with few (3–5) blunt teeth, more or less revolute-margined, glabrous on both surfaces, thick in texture, midvein and lateral nerves sunken above, distinct beneath; petioles 1–2 mm. long, base more or less persistent; inflorescence terminating the stem and branches in rather leafy paniculate cymes; heads heterogamous, radiate, 10–12 mm. high; involucre campanulate, conspicuously bracteolate, bracteoles linear, spreading; bracts of the involucre 13, linear-lanceolate, about 6 mm. long, glabrous except the penicillate tip; ray-flowers 8, rays narrowly oblong, about 7 mm. long, 2–2.5 mm. broad, yellow; disk-flowers 13–16; achenes glabrous.

ECUADOR: ravines, western slope of Pichincha, alt. 13000 ft., without date of collection, *W. Jameson,* no. *24* (British Mus. Hb., TYPE, Mus. Nat. Hist. Hb., Vienna, and U. S. Nat. Hb.); near Quito, alt. 12000 ft., without date of collection, *W. Jameson, s.n.* (British Mus. Hb.).

Senecio pimpinellaefolius HBK. Nov. Gen. & Sp. Pl. **4**: 174. 1820.

PERU: Chachapoyas, coll. of 1837, *Mathews,* no. *3054* (British Mus. Hb. and Brussels Hb.).

Senecio polyphyllus Kunze in Poepp. "Coll. Pl. Chile 3, no. 196" [Coll. pl. exsic. Chil. 3, no. 196]; DC. Prodr. **6**: 415. 1837.

PERU: Cuajones Mine, Torata, Prov. of Moquegua, 10 Feb., 1925, *Weberbauer,* no. *7466* (Field Mus. Hb. and Mo. Bot. Gard. Hb.).

CHILE: Pico de Pilque, Andes de Antuco, *Poeppig,* no. *196* (British Mus. Hb.); southern Andes, 8 Dec., 1828, *Poeppig, s.n.* (Mo. Bot. Gard. Hb.).

Senecio praeruptorum Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only; Linnaea **34**: 530. 1866, name only; Klatt in Leopoldina, Heft 24, p. 127. 1888, with description.

BOLIVIA: vicinity of Sorata, alt. 3300–3600 m., 8 April, 1858, *G. Mandon,* no. *115* (N. Y. Bot. Gard. Hb.); Pelechuco, alt. 12000 ft., March, 1865, *R. Pearce* (Kew Hb.).

Senecio pulchellus (HBK.) DC. Prodr. **6**: 421. 1837; Wedd. Chlor. And. **1**: 100. 1855.

Cacalia pulchella HBK. Nov. Gen. & Sp. Pl. **4**: 160. 1820.

COLOMBIA: without specific locality, coll. of 1842, *Linden,* no. *1251* (Mus. Nat. Hist. Hb., Vienna); Norte de Santander, road from Pamplona to Toledo, crossing the divide between La Teja (Maracaibo drainage) and Rio Mesme (Orinoco drainage), alt. 2500–2800 m., 28 Feb., 1927, *E. P. Killip & Albert C. Smith,* no. *19912* (Mo. Bot. Gard. Hb.); without specific locality, coll. of 1760–1808, *José Celestino Mutis,* nos. *243, 1824,* and *4863* (U. S. Nat. Hb.).

Senecio rhizomatus Rusby in Mem. Torr. Bot. Club **6**: 66. 1896, excluding *Bang,* no. *1046.*

S. erosus Wedd. Chlor. And. **1**: 228. 1855; Bull. Soc. Bot. Fr. **12**: 80. 1865; Linnaea **34**: 530. 1866, not *S. erosus* Linn f. Suppl. p. 370. 1781.

BOLIVIA: near snow line, Mt. Tunari, coll. of 1891, *Bang,* no. *1050* (N. Y. Bot. Gard. Hb., Phil. Acad. Nat. Sci. Hb., Mo. Bot. Gard. Hb., and Mus. Nat. Hist. Hb., Vienna), type collection of *S. rhizomatus* Rusby; vicinity of La Paz, alt. 5000 ft., 15 April, 1857, *Mandon,* no. *114* (N. Y. Bot. Gard. Hb.), type collection of *S. erosus* Wedd.; vicinity of Sorata, alt. 3300–4500 m., 8 Feb., 1858, *Mandon,* no. *114* (N. Y. Bot. Gard. Hb.).

Bang's no. 1046, mentioned by Rusby, *l.c.,* is *Senecio Klattii* Greenm.

Senecio Richii Gray in Proc. Am. Acad. **5**: 142. 1861.

PERU: Obrajillo, *U. S. Exploring Exp. under command of Capt. Wilkes, s.n.* (U. S. Nat. Hb.); open rocky slope, Canta,

Dep't. of Lima, alt. 2800–2900 m., 11–19 June, 1925, *Francis W. Pennell,* no. *14578* (Field Mus. Hb., Mo. Bot. Gard. Hb.); open rocky slopes, along Rio Chillón, above Obrajillo, Dep't. of Lima, 13–23 June, 1925, *Francis W. Pennell,* no. *14380* (Field Mus. Hb. and Mo. Bot. Gard. Hb.).

Senecio Richii Gray var. **latior** Greenm., n. var.

S. Richii var. β. Gray in Proc. Am. Acad. **5**: 142. 1861.

Formae typicae habitu simili; foliis superioribus subpinnatisectis vel laciniatis, supra glabris, subtus arachnoideo-tomentulosis; laciniis foliorum lineari-acuminatis, usque ad 1 cm. longis, acutis, plus minusve curvatis.

Similar to the species, but with less pinnatisect leaves and broader leaf-lobes, more or less white arachnoid-tomentulose on the under leaf-surface.

PERU: Obrajillo, *U. S. Expl. Exp. under command of Capt. Wilkes, s.n.* (U. S. Nat. Hb., sheet no. *1121675*), TYPE.

Senecio scaphiformis Greenm., n.sp.

Frutex, usque ad 5 m. altus; caulibus fusco-brunneis, striatis, tomentuloso-pubescentibus; foliis alternis, petiolatis, ovatis vel ovato-oblongis, 6–12 cm. longis, 4–6.5 cm. latis, basi cuneatis vel rotundatis, sinuato-dentatis, acutis, supra glabris vel subglabris, subtus sparse crispo-pubescentibus et conspicue venosis; petiolis 0.5–2 cm. longis; inflorescentiis paniculatis terminalibus; inflorescentiae bracteis foliaceis, subpetiolatis, obovatis, plus minusve scaphiformibus et aliquanto suffultis; capitulis heterogamis, radiatis, 10–12 mm. altis; involucris anguste campanulatis, calyculatis; involucri squamis 8, lineari-lanceolatis, ca. 7 mm. longis, flocculoso-tomentulosis; floribus femineis 8, ligulis anguste oblongis, ca. 8 mm. longis, 4-nervatis, flavis; floribus disci 10–12; achaeniis glabris.

Shrub 5 m. or less high; branches reddish-brown, striate, minutely pubescent; leaves alternate, petiolate, ovate to ovate-oblong, 6–12 cm. long, 4–6.5 cm. broad, cuneate to rounded at the base, sinuate-dentate, acute, glabrous or nearly so above, sparingly pubescent beneath, prominently veined; petioles 0.5–2 cm. long; inflorescence a terminal panicle; bracts of the inflorescence foliaceous, subpetiolate, obovate, more or less boat-

shaped and somewhat suffultous; heads heterogamous, radiate, 10–12 mm. high; involucre narrowly campanulate, calyculate; bracts of the involucre 8, linear-lanceolate, about 7 mm. long, flocculose-tomentulose; ray-flowers 8, rays narrowly oblong, about 8 mm. long, 4-nerved, yellow; disk-flowers 10 to 12, yellow; achenes glabrous.

COLOMBIA: in dense forests of the Central Andes, Popayán, alt. 2800–3300 m., March, 1901, *F. C. Lehmann,* no. *B.T. 493* (Kew Hb., TYPE, N. Y. Bot. Gard. Hb., photograph of type in Mo. Bot. Gard. Hb.).

Senecio Sepium Schz. Bip. in Bull. Soc. Bot. Fr. **12**: 80. 1865, name only; Linnaea **34**: 531. 1866, name only; Rusby in Bull. N. Y. Bot. Gard. **4**: 394. 1907, in part, as to *Mandon,* no. *133,* not as to plant of *Bang.*

Heads heterogamous, 8–10 mm. high, radiate; involucre campanulate, calyculate, glabrous; bracts of the involucre about 13, glabrous and, as well as the bracteoles, purplish or black towards the apex; ray-flowers usually 8, tube slender, rays narrowly oblong, 5–6 mm. long; disk-flowers about 35; mature achenes 2 mm. long, hirtellous.

BOLIVIA: vicinity of Sorata, alt. 2650–3700 m., 8 June, 1859, *Mandon,* no. *133* (N. Y. Bot. Gard. Hb. and Mus. Nat. Hist. Hb., Vienna).

The Bang plant to which Dr. Rusby referred, following the original description of the species, although a rather imperfect specimen, is unquestionably an *Erechtites.*

Senecio sinuatilobus DC. Prodr. **6**: 417. 1837.

CHILE: Valparaiso, coll. of 1856–1857, *Germain, s.n.* (Mus. Nat. Hist. Hb., Vienna); Fray Jorge, Dep't. of Ovalle, Prov. of Coquimbo, alt. 500 m., Nov., 1925, *Werdermann,* no. *926* (Field Mus. Hb. and Mo. Bot. Gard. Hb.); San Antonio, Dep't. of San Antonio, Prov. of Santiago, 16 Oct., 1927, *Montero,* no. *211* (Mo. Bot. Gard. Hb.).

Senecio sotarensis Hieron. in Engl. Bot. Jahrb. **21**: 360. 1895.

COLOMBIA: Volcan Sotará, Feb., 1869, *A. Stübel,* no. *3392* (Berlin Hb., fragment and photograph in Mo. Bot. Gard. Hb.).

ECUADOR: in ravines near Quito, *Jameson,* no. *856* (Kew Hb); in Valley Lloa, near Quito, Sept., 1918, *Luis Mille,* no. *733* (N. Y. Bot. Gard. Hb.).

Senecio stigophlebius Baker in Mart. Fl. Bras. **6**[2]: 321. 1884.

BRAZIL: without definite locality, *Sello* [*Sellow*], no. *2187* (Gray Hb., *co-type);* vicinity of Itatiaya, 26–30 July, 1915, *Rose & Russell,* nos. *20504* and *20549* (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.).

Senecio subcandidus Gray in Proc. Am. Acad. **5**: 141. 1861.

PERU: Obrajillo, *U. S. Expl. Exp. under command of Capt. Wilkes, s.n.* (U. S. Nat. Hb.), TYPE; Guamautanga, June, 1838, *Barclay,* no. *2288* (British Mus. Hb.); Mutucana, alt. about 8000 ft., 12 April–3 May, 1922, *Macbride & Featherstone,* nos. *156, 160, 177,* and *414* (Field Mus. Hb.); open rocky slope, Canta, Dep't. of Lima, alt. 2700–3200 m., *Pennell,* no. *14337* (Field Mus. Hb.).

Senecio suglomerosus Greenm. in Ann. Mo. Bot. Gard. **10**: 93. 1923.

PERU (?): "western South America, woods about Sta. Cruz, alt. 6–8000 ft.," July, 1865, *Richard Pearce, s.n.* (British Mus. Hb. and Kew Hb.).

Senecio tephrosioides Turcz. in Bull. Soc. Nat. Mosc. **24**[2]: 92. 1851.

Senecio subdecurrens Schz. Bip. ex Wedd. Chlor. And. **1**: 109. 1855; Schz. Bip. in Bonplandia **4**: 55. 1856; Greenm. in Ann. Mo. Bot. Gard. **10**: 93. 1923.

ECUADOR: Sangai(?), *Karsten* (Mus. Nat. Hist. Hb., Vienna); "Andium Quitensium," alt. 13000 ft., *W. Jameson,* no. *556* (Mus. Nat. Hist. Hb., Vienna).

From the characters recorded in the original descriptions and from the material at hand, I am unable to distinguish the above as distinct species. Therefore, I have taken the earlier published name.

Senecio teretifolius (HBK.) DC. Prodr. **6**: 420. 1837.

Cacalia teretifolia HBK. Nov. Gen. & Sp. Pl. **4**: 159, *pl. 357.* 1820.

Ecuador: Quito, *Karsten, s.n.* (Mus. Nat. Hist. Hb., Vienna); Asuai, *Karsten, s.n.* (Mus. Nat. Hist. Hb., Vienna).
Chile: Cordil. de Santiago, coll. of 1856–1857, *Germain* (Mus. Nat. Hist. Hb., Vienna).

Senecio tolimensis Schz. Bip. ex Wedd. Chlor. And. 1: 98–99. 1855.

Colombia: without definite locality, coll. of 1760–1808, *José Celestino Mutis,* no. *1787* (U. S. Nat. Hb.).

Senecio trichopus (Benth.) Greenm., n. comb.
Microchaete trichopus Benth. Pl. Hartw. p. 209. 1845.
Senecio pulchellus β. *trichopus* Wedd. Chlor. And. 1: 100. 1855.

Colombia: Prov. of Popayán, *Hartweg,* no. *1163* (N. Y. Bot. Gard. Hb.), part of type collection; headwaters of Rio Lopez, Rio Palo Basin, Tierra Adentro, alt. 2500–3000 m., 24 Jan., 1906, *H. Pittier,* no. *1085* (U. S. Nat. Hb.).

Senecio tristis Phil. var. **Comberi** Greenm., n. var.

Plantae suffruticosae, ubique hirsuto-glandulosae; caulibus ascendentibus, usque ad 3 dm. altis; foliis crassulis, oblanceolatis vel oblongo-oblanceolatis, 1.5–3 cm. longis, 3–13 mm. latis, plerumque mucronatis, integris vel versus apicem pauci-dentatis; capitulis homogamis aut radiatis; involucris campanulatis, paulo calyculatis, 1.3–1.5 cm. altis; involucri squamis 21, lineari-lanceolatis, attenuatis, 10–12 mm. longis; floribus femineis (si adsint) ca. 13, ligulis anguste oblongis, flavis; floribus disci ca. 45; achaeniis glabris vel minute hirtellis.

Plant suffruticose, hirsute-glandular throughout; stems ascending, 1–3 dm. high; leaves fleshy, oblanceolate to oblong-oblanceolate, 1.5–3 cm. long, 3–13 mm. broad, usually mucronate, entire or few-toothed toward the apex; heads discoid or radiate; involucre campanulate, 1.3–1.5 cm. high, sparingly calyculate; bracts of the involucre about 21, linear, attenuate, 10–12 mm. long; ray-flowers, when present, about 13, rays narrowly oblong, yellow; disk-flowers about 45; achenes glabrous or minutely hirtellous.

Argentina: Andes Expedition, 38°–41° S., "Norquinco

P.," alt. 3700 ft., 12 Feb., 1926, *H. F. Comber,* no. *533* (Kew Hb., TYPE, photograph in Mo. Bot. Gard. Hb.).

CHILE: Aguas Calientes, Baños de Chillan, Prov. of Nuble, alt. about 2200 m., *E. Werdermann,* no. *1320* (Berlin Hb. and Mo. Bot. Gard. Hb.).

The present variety differs from the species, as it was described originally, in having longer stems, larger leaves, radiate instead of discoid heads, and in having 21 instead of 12 involucral bracts. The writer feels that the plant concerned represents only an extreme variation of the Philippi species.

Senecio Urbani Hieron. in Engl. Bot. Jahrb. **28:** 640. 1901.

COLOMBIA: Prov. of Popayán, *Triana,* no. *1489* (Berlin Hb., TYPE, fragment and photograph in Mo. Bot. Gard. Hb., Mus. Nat. Hist. Hb., Vienna); Las Cañas, 23 Nov., 1853, *I. F. Holton,* no. *386* (N. Y. Bot. Gard. Hb.); without specific locality, coll. of 1760–1808, *José Celestino Mutis,* no. *237* (U. S. Nat. Hb.); La Cumbre, Dep't. of El Valle, Cordillera Occidental, alt. 1500–1700 m., 11–16 July, 1922, *Hazen,* no. *11835* (U. S. Nat. Hb.); grassy slopes, west of Salento, Dep't. of Caldas, Cordillera Central, alt. 1600–1900 m., 25–31 July, 1922, *Killip & Hazen,* no. *8769* (U. S. Nat. Hb.); forest below Magana, Old Quindio Trail, Cordillera Central, Dep't. of Caldas, alt. 3000–3200 m., 1–2 Aug., 1922, *Killip & Hazen,* no. *9483* (U. S. Nat. Hb.); open trail, La Cumbre, Dep't. of El Valle, Cordillera Occidental, alt. 1600–1800 m., *Killip,* no. *11413* (U. S. Nat. Hb.).

Senecio vaccinioides (HBK.) Schz. Bip. ex Wedd. Chlor. And. **1:** 99. 1855.

COLOMBIA: without definite locality, coll. of 1842, *Linden,* no. *741* (Mus. Nat. Hist. Hb., Vienna).

Senecio vaccinioides (HBK.) Schz. Bip. var. **pruinosa** Wedd. Chlor. And. **1:** 99. 1855.

COLOMBIA: without definite locality, coll. of 1760–1808, *José Celestino Mutis,* no. *1817* (U. S. Nat. Hb.).

Senecio verticillatus Klatt in Abhl. Naturf. Ges. Halle **15:** 331. 1882.

Peru: Chachapoyas, coll. of 1836, *Mathews*, no. *105*. (Kew Hb.).

The specimen here cited agrees with the original description of this species; moreover, it comes from the type locality and in all probability is a part of the collection on which the species was founded. The leaf-bases are persistent and cause a roughness of the stem which, however, is otherwise glabrous as described by Dr. Klatt. That the species is a variable one is indicated by several specimens collected by Mr. Mathews at Chachapoyas and other stations. One variant with conspicuously hirsute-setose branches and branchlets seems worthy of varietal designation.

Senecio verticillatus Klatt var. **trichophorus** Greenm., n. var.

Frutex; ramis ramulisque juventate hirsuto-setosis denique plus minusve glabratis; ramis aliquanto secundis.

Peru: Chachapoyas, without date of collection, *Mathews, s.n.* (Kew Hb., type); Bajasan, coll. of 1835, *Mathews*, no. *1375* (Kew. Hb.); without definite locality, *Mathews, s.n.* (U. S. Nat. Hb., sheet no. *245952*).

Senecio Werdermannii Greenm., n. name.

Senecio modestus Philippi in Linnaea **28:** 745. 1856, not *S. modestus* Wedd. Chlor. And. **1:** 105, *pl. 18, fig. B.* 1855.

Chile: Cordilierès de Santiago, coll. of 1856–1857, *Germain, s.n.* (Mus. Nat. Hist. Hb., Vienna); Fierro Carrera, Cord. Rio San Francisco, Prov. of Santiago, alt. 3200 ft., *Werdermann*, no. *645* (Field Mus. Hb. and Mo. Bot. Gard. Hb.).

Senecio yurensis Rusby in Bull. N. Y. Bot. Gard. **8:** 133. 1912.

Peru: near Arequipa, 8 Aug., 1914, *Mr. & Mrs. J. N. Rose*, no. *18830* (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.); Vincocaya, 21 Aug., 1914, *Mr. & Mrs. J. N. Rose*, no. *18947* (U. S. Nat. Hb. and Mo. Bot. Gard. Hb.).

CONTRIBUTIONS TOWARD A FLORA OF PANAMA[1]

II. Miscellaneous Collections during 1936–1938

ROBERT E. WOODSON, JR.
Assistant Curator of the Herbarium, Missouri Botanical Garden
Assistant Professor in the Henry Shaw School of Botany of Washington University

AND RUSSELL J. SEIBERT
Formerly Assistant in Botany, Henry Shaw School of Botany of Washington University

Among the most interesting botanical collections made in Panama during the year 1937 is a series of approximately seventy-five numbers sent the Missouri Botanical Garden by Gene and Peggy White. Although a part of these specimens is from the Canal Zone, the majority was secured from the neighborhood of the upper Río Chiriquí Viejo watershed in the Province of Chiriquí, a locality visited in the summer of 1935 by R. E. Woodson, Jr. and R. J. Seibert (cf. Ann. Missouri Bot. Gard. **24**: 175–210. 1937). A surprising proportion of this collection consists of novelties or additions to the known flora of Panama.

The present report also includes miscellaneous collections made in various localities in Panama by P. H. Allen, Manager of the Missouri Botanical Garden Tropical Station, Balboa, C. Z. Of these, perhaps greatest interest is attached to a representative series of plants collected in the valleys of Río Tuyra and Río Yape, in the Province of Darien. An interesting account of Allen's experiences during this trip is printed in Missouri Bot. Gard. Bull. **25**: 114–122. 1937. Unfortunately a portion of this collection, together with the great majority of a collection of some 1,200 numbers secured during the summer of 1937 by Woodson, Allen, and Seibert, was destroyed by a fire which badly damaged the administration building of the Tropical Station in Balboa the night of September 1, 1937.

[1] Issued November 28, 1938.

POLYPODIACEAE

(William R. Maxon, Washington, D. C.)

DRYOPTERIS HOSTMANNI (Kl.) Maxon & Morton. VERAGUAS: trail between Cañazas and the foot of the Cordillera Central, headwaters of Río Cañazas, alt. 300–600 m., Feb. 8, 1937, *(Allen 164)*. Previously known only from British and Dutch Guiana.

DRYOPTERIS LINDIGII C. Chr. VERAGUAS: trail between Cañazas and the foot of the Cordillera Central, headwaters of Río Cañazas, alt. 300–600 m., Feb. 8, 1937 *(Allen 171)*. Previously known from Costa Rica, Colombia, and Venezuela.

ELAPHOGLOSSUM SILIQUOIDES (Jenman) C. Chr. COCLÉ: vicinity of El Valle, alt. 700–1000 m., very cool, dark forest, Feb. 14, 1937 *(Allen 233)*. Previously known from Jamaica, Cuba, Hispaniola, Guatemala, and Costa Rica.

AMARYLLIDACEAE

CRINUM **darienensis** Woodson, spec. nov.; bulbis non bene evolutis ovato-oblongoideis 1.2–1.7 cm. diametro stoloniferis; foliis basi amplexicaulibus in vagina productis 20–32 cm. longis, lamina oblongo-elliptica apice abrupte subcaudato-acuminata plana delicate subsucculento-membranacea 3.5–5.5 cm. lata basi obtusa in petiolo 0.6–1.0 cm. lato producta, margine subcartilagine eroso-denticulato, vagina 3–5 cm. longa 0.8–1.5 cm. lata; pedunculis 9–14 cm. longis 2–4-floris, spatha sub anthesi usque basin 2-partita parte utraque ensiformi ad 7 cm. longa; floribus sessilibus; perianthi tubo gracillimo 21–25 cm. longo basi ca. 0.15 cm. diametro prope fauces paullo dilatato ut videtur albido, lobis oblongo-ellipticis apice acuminatis albis 7.5–8.0 cm. longis 1.2–1.5 cm. latis; staminis filamenta subulata rubra ca. 4 cm. longa, anthera oblonga arcuata 1.2 cm. longa; ovario ellipsoideo 1.2–1.5 cm. longo ca. 0.4 cm. diametro, stylo rubro 4.5 cm. longo, stigmate punctiforme.—DARIEN: trail between Pinogana and Yavisa, alt. ca. 15 m., March 17, 1937, *P. H. Allen 264* (Herb. Missouri Bot. Garden, TYPE).

This plant is scarcely to be confused with the neighboring

C. erubescens, or with any other species known to me, because of the small leaves of unusual shape for the genus, and the small, poorly developed bulbs which consist scarcely of more than the sheathing leaf bases. Several plants of this species were collected by Mr. Allen, all agreeing with the general description. The flowers are said to be delicately fragrant. A peculiar tendency for the sap of cut bulbs to oxidize to a dull red has been noticed upon all of the specimens.

BURMANNIACEAE

(F. P. Jonker, Utrecht)

GYMNOSIPHON SUAVEOLENS (Karst.) Urb. CHIRIQUÍ: valley of the upper Río Chiriquí Viejo, alt. 1300–1900 m., July–Aug., 1937 *(Gene & Peggy White 15, 24)*. Previously known from Mexico, Guatemala, Costa Rica, Colombia, Venezuela, and Brazil.

ORCHIDACEAE

(Charles Schweinfurth, Cambridge, Mass.)

CYCNOCHES CHLOROCHILON Kl. PANAMÁ: Río La Maestra, alt. 0–25 m., Dec. 4, 1936 *(Allen 65)*. Previously known from British Honduras, Venezuela, Colombia, and British Guiana.

CRANICHIS MUSCOSA Sw. COCLÉ: vicinity of El Valle, alt. 800–1000 m., terrestrial, among rocks along stream, Dec. 22, 1936 *(Allen 74)*. Previously known from Florida, Costa Rica, the West Indies, and Venezuela.

PIPERACEAE

(William Trelease, Urbana, Ill.)

PEPEROMIA **Alleni** Trelease, spec. nov. Herba epiphytica repens omnino glabra parva sed comparate megaphylla; caule graciliusculo; foliis oppositis orbicularibus vel subovato-ellipticis apice basique acutis subacutisve, ca. 1.5 × 2.0 cm., 3-nervatis post exsiccationem coriaceis, petiolo 0.5 cm. longo; spicibus terminalibus etiam 0.1 × 3.0 cm., pedunculo 1.5 cm. longo.—DARIEN: Pinogana-Yavisa trail, alt. 15 m., March 17, 1937, *P. H. Allen 262* (Herb. Missouri Bot. Garden, TYPE).

Peperomia **cocleana** Trelease, spec. nov. Herba repens parva foliis exceptis omnino glabra; caule filiforme, internodiis brevibus; foliis alternatis orbicularibus obtusis vel subtruncatis basi acutis vix 0.5 cm. diametro metientibus, ciliatis; petiolo filiforme 0.2 cm. longo; spicibus axillaribus vix 0.2 × 0.4 cm., pedunculo vix 0.5 cm. longo.—coclé: on boulders, upper Río Mata Ahogado valley, alt. 350 m., Dec. 31, 1936, *P. H. Allen 133* (Herb. University of Illinois, type, Herb. Missouri Bot. Garden, isotype).

Piper **Alleni** Trelease, spec. nov. Arbor ca. 7 m. alta; internodiis gracilibus sat brevibus sparse subvelutinis; foliis lanceolatis apice anguste acuminatis basi oblique subacutis 6.0–6.5 cm. latis 17–18 cm. longis inferne pinnate nervatis, nervis ca. 5 + 2, supra lepidoto-scabridulis subtus subvelutinis; spicibus rectibus 0.2 × 5.0 cm., pedunculo 0.5–1.0 cm. longo.—darien: Pinogana-Yavisa trail, alt. 15 m., March 17, 1937, *P. H. Allen 270* (Herb. University of Illinois, type, Herb. Missouri Bot. Garden, isotype).

Mr. Allen reports that the roots are said to be used to deaden pain, and the leaves as an antidote for snake venom.

Piper **canyazasense** Trelease, spec. nov. Arborescens ca. 2 m. alta; internodiis superis gracilibus brevibusque puberulis; foliis elliptico-lanceolatis apice falcate angusteque acuminatis basi inaequilateraliter rotundatis 11–15 cm. longis 4.5–5.0 cm. latis inferne pinnate nervatis, nervis ca. 6 + 5, leviter rugosis ciliatis supra minute scabro-pubescentibus subtus puberulis, petiolo ca. 0.5 cm. longo velutino; spicibus vix 0.2 × 1.5 cm., brevi-pedunculatis.—veraguas: Cañazas trail to the central cordillera, alt. 300–600 m., Feb. 8, 1937, *P. H. Allen 185* (Herb. University of Illinois, type, Herb. Missouri Bot. Garden, isotype).

Piper san-joseanum C.DC. var. **chiriquinum** Trelease, var. nov. Frutex ca. 2 m. altus; foliis ovatis acuminatis basi retuse subtruncatis 10–13 cm. longis 8–10 cm. latis, petiolo 4 cm. longo; spicibus rectibus vel reflexis 0.3 × 12.5 cm., pedunculo 0.5 cm. longo.—chiriquí: between Río Tabasará and Río Tinta, Aug. 11, 1937, *Woodson, Allen & Seibert 416* (Herb. Missouri Bot. Garden, type).

PIPER **tabasaranum** Trelease, spec. nov. Arbor parva ca. 4–5 m. alta omnino glabra; internodiis graciliusculis brevibus; foliis ellipticis breve-caudatis basi acutis 4.0–5.5 cm. latis 9–10 cm. longis 5-jugis, nervis utrinque prominentibus, petiolo vix 0.5 cm. longo; spicibus ca. 0.3 × 5.0 cm., floribus congestis, pedunculo 1 cm. longo, bracteis subcucullatis; baccis ovoideis; stigmatibus 3 sessilibus.—CHIRIQUÍ: banks of lower Río Tabasará, Aug. 12, 1937, *Woodson, Allen & Seibert 440* (Herb. Missouri Bot. Garden, TYPE).

PIPER **yapeanum** Trelease, spec. nov. Arbor ca. 15 m. alta; internodiis florigeris sat gracilibus brevibusque sparsiuscule subvillosis; foliis late lanceolatis gradatim anguste acuminatis basi inaequilateraliter rotundatis vel subcordatis 15–17 cm. longis 6–7 cm. latis inferne pinnate nervatis, nervis ca. 6 + 5 supra minute scabridis subtus sparse subvillosis, petiolo ca. 1 cm. longo sparse villoso; spicibus paene rectis 0.3 × 4.0 cm., pedunculo 0.5 cm. longo glabrato.—DARIEN: near the mouth of Río Yape, alt. 20 m., July 12–14, 1937, *P. H. Allen 351* (Herb. University of Illinois, TYPE, Herb. Missouri Bot. Garden, ISOTYPE).

PODOSTEMONACEAE

MARATHRUM **Allenii** Woodson, spec. nov., rhizomate repente sat tenue frondoso; foliorum petiolo 1.0–1.5 cm. longo inferne basi saepius late vaginato, lamina late ovata vel oblongo-elliptica 2–13 cm. longa 1.5–4.0 cm. lata 5-pinnatifida, laciniis ultimis acutis vel obtusiusculis subdichotomis ca. 0.1 cm. longis linearibus; floribus solitariis rariusve subfasciculatis, spathellis 0.9–1.5 cm. longis cylindrico-obconicis margine profunde laciniatis, pedicellis usque 5 cm. longis apice in poculo calyciforme ca. 0.15 cm. diam. dilatatis, tepalis 6 minute triangularibus ca. 0.2 mm. longis; staminis 6 filamenta 0.15 cm. longa inferne planiuscula superne filiforme, anthera anguste sagittata 0.25 cm. longa; ovario ovoideo ca. 0.3 cm. longo 0.1 cm. crasso distincte 6-nervato basi attenuato, stigmate basi connato 0.1 cm. longo; capsulis oblongo-ovoideis ca. 0.4 cm. longis 0.2 cm. crassis.—COCLÉ: vicinity of El Valle, alt. 800–1000 m., on rocks in fast water, Dec. 22, 1936, *P. H. Allen 82* (Herb. Missouri Bot. Garden, TYPE).

This specimen keys to the neighborhood of *M. Schiedeanum* Cham. in Standley's 'Flora of the Panama Canal Zone.' However, a comparison of *Allen 82* with *Schiede & Deppe 965* (in Herb. Missouri Bot. Garden), the type collection of *M. Schiedeanum*, demonstrates that not only is the rhizome of *M. Allenii* very much more frondose, the enlarged bases of the leaf petioles almost stipular, but the spathellae are also distinct, those of *M. Allenii* being deeply and irregularly lacerate and those of *M. Schiedeanum* rather regularly and bluntly 2-lobed. The laceration of the spathella also serves to separate *M. Allenii* from *M. foeniculaceum* H. & B.

NYCTAGINACEAE

(P. C. Standley, Chicago)

NEEA ACUMINATISSIMA Standl. DARIEN: trail between Yavisa and Pinogana, March 17, 1937 *(Allen 268)*. Previously known from Honduras and British Honduras.

MAGNOLIACEAE

MAGNOLIA **sororum** Seibert, spec. nov. Arbor 22 m.; ramuli juniores dense fulvo-pubescentes; folia petiolata persistentia; lamina elliptico-ovata vel obovata vel oblonga, basi obtusa vel rotunda, apice obtusa vel subacuta vel subacutata, 6–15 cm. longa, 3–9.5 cm. lata, coriacea, supra glabrescens, primo costae basim versus fulvo-pubescens, subtus dense fulvo-pubescens, leviter revoluta; petioli 1–3 cm. longi, apice canaliculati ceterum teretes dense fulvo-pubescentes; stipulae a petiolo liberae, extus dense fulvo-pubescentes; flores albi fragrantes; alabastrum initio bracteis spathoideis 2 deciduis inclusum; bracteae extus dense fulvo-pubescentes; pedunculus 1.5–2.5 cm. longus, dense fulvo-pubescens; tepala 9, 3 exteriora obovato-oblonga, 5.5–6 cm. longa 2.5–3 cm. lata, extus basi sparse fulvo-pubescentia, 6 interiora obovata basi angustiora, 5.5–7 cm. longa, 2–4.5 cm. lata, glabra; stamina numerosissima, 1.3–1.5 cm. longa, antheris sessilibus linearibus introrse dehiscentibus. Fructus 4.5–6 cm. longus; carpella 32–45, dense fulvo-pubescentia.—CHIRIQUÍ: valley of the upper Río Chiri-

quí Viejo, alt. 1800 m., July, 1937, *Gene & Peggy White 21* (Herb. Missouri Bot. Garden, TYPE).

This is apparently the first representative of the genus *Magnolia* to be reported south of Costa Rica. *M. sororum* differs from the other Central American species by being densely and generally fulvo-pubescent. It is immediately distinguishable from *M. poasana* (Pittier) Dandy, by its pubescence, broader and longer inner perianth segments, and greater number of carpels, and from *M. guatemalensis* Donn. Sm., which is a nearly glabrous tree with cuspidate leaves and fewer carpels. Its closest congener seems to be *M. Yoroconte* Dandy, on the basis of carpel numbers and the two spathaceous bracts which enclose the flower bud, but may be easily distinguished by its dense pubescence, larger leaves, and larger flowers. This species is quite abundant in a limited zone between 1650 and 2120 m., occurring both on the east and northwest side of the Volcán de Chiriquí. Named in honor of the two sisters, Gene and Peggy White, who made a special effort to recollect the plant after the writer's original specimens were lost by fire.

THEACEAE

(P. C. Standley, Chicago)

EURYA **panamensis** Standl., spec. nov. Arbor 10–12-metralis ut videtur dense ramosa, ramulis teretibus cinnamomeis, novellis sparse pilis brevibus adpresso-pilosis vel fere glabris, internodiis brevibus; folia parva breviter petiolata coriacea, petiolo crasso 3–4 mm. longo sparse breviter sericeo vel glabrato; lamina cuneato-obovata vel oblongo-obovata 2.5–5.5 cm. longa 1–2.5 cm. lata, apice rotundata vel obtusa, basin versus sensim cuneato-angustata, basi ipsa acuminata, margine basin versus integro vel subintegro, superne arcte crenato-serrato, crenaturis obtusis adpresso-incurvis, supra glabra, in sicco cinerascens sublucida, costa subimpressa, nervis vix prominulis, subtus pallidior, primo sat dense sericea sed cito glabrata, costa prominente crassiuscula, nervis lateralibus utroque latere ca. 12 tenerrimis prominulis angulo semirecto adscendentibus in marginem desinentibus, venis paucis re-

motis prominulis laxe reticulatis; flores solitarii vel geminati, pedicellis 9–12 mm. longis glabris plerumque recurvis; sepala adpressa paullo inaequalia, exteriora breviora, interiora 4 mm. longa suborbicularia, apice late rotundata et minute apiculata, glabra, minute ciliolata; petala alba glabra obovato-spathulata emarginata 5–6 mm. longa; stamina ca. 25, filamentis elongatis filiformibus antheris triplo longioribus, antheris brevibus apice sparse breviter pilosis; ovarium glabrum.—CHIRIQUÍ: valley of upper Río Chiriquí Viejo, alt. 1,300–1,900 m., July 16, 1937, *Gene & Peggy White 16* (Herb. Field Museum, TYPE; Herb. Missouri Bot. Garden, ISOTYPE).

The flowers are described as very fragrant. From all other Central American species of the genus the tree of Chiriquí is distinguished by the small, obovate leaves with very obtuse or rounded apex.

PASSIFLORACEAE

(Ellsworth P. Killip, Washington)

PASSIFLORA SALVADORENSIS Donn. Sm. CHIRIQUÍ: valley of the upper Río Chiriquí Viejo, near Monte Lirio, alt. 1300–1900 m., March 20, 1938 *(Gene White 25)*. Previously known only from Salvador.

BEGONIACEAE

(P. C. Standley, Chicago)

BEGONIA **Allenii** Standl., spec. nov. Terrestris ca. 40 cm. alta, ut videtur erecta, caulibus sat gracilibus multifoliatis pilis laxis patentibus villosis vel glabratis, internodiis brevibus; stipulae deciduae tenues glabrae integrae late ovali-oblongae acutiusculae, apiculatae vel breviter mucronatae, 1 cm. longae; folia mediocria brevissime petiolata in sicco tenuia, petiolo gracili 5–9 mm. longo sparse villoso vel glabrato; lamina oblique cuneato-oblanceolata 7–11.5 cm. longa 2–3.5 cm. lata, apicem versus latissima, longe anguste attenuato-acuminata, basin versus longe sensim attenuata, basi paullo obliqua utroque latere acutissima, supra glabra viridis, subtus pallida, ubique

densissime cystosphaeriis pallidis obsita, glabra vel tantum ad costam praesertim basin versus sparse villosa, margine superne breviter sinuato-lobato atque remote serrulato, basin versus integro; cymae plerumque axillares laxe pauciflorae 2–5 cm. longae 2.5–8.5 cm. latae, basi bifidae, graciliter 3–7 cm. longe pedunculatae, pedicellis gracillimis viscido-villosulis 3–4 mm. longis, fructiferis usque 10 mm. longis; sepala exteriora floris masculi roseo-rubra glabra ovato-rotundata ca. 4 mm. longa atque aequilata, apice rotundata, basi subtruncata; capsula ambitu suborbicularis 8 mm. longa 10 mm. lata, glabra, basi et apice late rotundata vel subtruncata, trialata, alis subaequalibus tenuibus reticulato-venosis ca. 3 mm. latis. —COCLÉ: vicinity of El Valle, north rim, 800–1,000 m., Feb. 14, 1937, *P. H. Allen 234* (Herb. Field Museum, TYPE; Herb. Missouri Bot. Garden, ISOTYPE).

Practically all the known Begonias of Panama were described by Casimir De Candolle, and their total number is not large as compared with those of Costa Rica. While I am uncertain as to the nearest affinities of the present plant, careful search of the literature shows that it is not closely related to any species known from Panama or Costa Rica. The penni-nerved leaves are distinctive, being very asymmetric, with a long, narrow acumination and a very long, narrow, tapering base.

This *Begonia* is only one of a considerable number of interesting additions made to the known flora of Panama by Mr. Allen, whose well-prepared specimens show a keen sense of discrimination in their selection.

COMBRETACEAE

(P. C. Standley, Chicago)

BUCHENAVIA CAPITATA (Vahl) Eichl. PANAMÁ: Río La Maestra, Dec. 4, 1936 *(Allen 35)*. Genus new for Central America. It is rather probable that this represents a distinct new species, but the material (fruiting) is scant, and the observable differences are principally in the leaves. *B. capitata* has a rather wide range, from the West Indies to the Guianas and Brazil.

MYRSINACEAE

(P. C. Standley, Chicago)

Ardisia **furfuracella** Standl., spec. nov. Arbor 6-metralis, ramis teretibus ferrugineis, novellis crassiusculis minutissime adpresse ferrugineo-furfuraceis, internodiis brevibus; folia inter minora breviter petiolata tenuiter coriacea, petiolo crassiusculo 5–8 mm. longo minute furfuraceo; lamina anguste lanceolato-oblonga 8–11 cm. longa 2.5–3.2 cm. lata subabrupte acuminata, acumine ipso obtuso, basi acuta, integerrima, supra in sicco olivaceo-viridis glaberrima sublucida vel opaca, costa gracili prominente, nervis obscuris non elevatis, subtus multo pallidior, ubique sat dense sed minutissime furfuraceo-lepidota, costa gracili prominente, nervis lateralibus utroque latere ca. 12 tenerrimis prominulis arcuatis angulo lato abeuntibus, venulis laxe reticulatis; inflorescentia terminalis bipinnatim paniculata foliis duplo brevior, dense multiflora, ramis crassiusculis dense minute furfuraceo-lepidotis, floribus umbellato-corymbosis, bracteis oblongis usque 6 mm. longis ut videtur deciduis pallidis sat dense punctatis, pedicellis brevibus; sepala ante anthesin vix ultra 1 mm. longa ovalia pallida dense punctata; cetera ignota.—CHIRIQUÍ: valley of upper Río Chiriquí Viejo, alt. 1,300–1,900 m., July 13, 1937, *Gene & Peggy White 8* (Herb. Field Museum, TYPE; Herb. Missouri Bot. Garden, ISOTYPE).

"A tree of 6 meters, with very hard wood; buds orange-yellow. Growing in open sunlight." The material, unfortunately, is in very young bud, and it is impossible to describe the details of the flowers. The curious indument of the lower leaf surface, consisting of minute, dense, yellowish or brownish, peltate scales is not matched in any other Central American species known to me.

APOCYNACEAE

Plumeria inodora Jacq. PANAMÁ: Bella Vista, Panama City, Feb. 20, 1938 *(Allen s.n.)*. *P. inodora* has been recorded previously only from Colombia and British Guiana, apparently never in the cultivated state (cf. Woodson, Ann. Missouri Bot. Gard. **25**: 206. 1938). In Panama it is known only from Bella

Vista, a rather newly developed "subdivision" of Panama City, where trees of considerable size are found occasionally in vacant lots as well as in the gardens of the pretentious residences of the community. Upon inquiry the owners of the trees invariably confessed complete ignorance concerning their origin. Hence, whether the species is indigenous or introduced cannot be ascertained at present.

STEMMADENIA DONNELL-SMITHII (Rose) Woodson. CHIRIQUÍ: vicinity of Río Tabasará, along highway, Aug. 11, 1937 *(Woodson, Allen & Seibert 411)*. This tree has previously been known virtually throughout Central America from southern Mexico (Guerrero) to Costa Rica. As this station is only across the river from the province of Veraguas, the known distribution of the genus is thus extended considerably south of the Costa Rican border.

ECHITES TURBINATA Woodson. CHIRIQUÍ: valley of upper Río Chiriquí Viejo, between El Volcán and Cerro Punta, March 15, 1938 *(Gene White 6)*. Previously known only from the type locality, near Rancho Flores, Costa Rica. Although almost unquestionably this species, Miss White's specimens show a much more luxuriant liana than the type specimen, the inflorescences averaging over 40 flowers, the corolla lobes of which attain 2.5 cm. in length.

ASCLEPIADACEAE

VINCETOXICUM **discolor** Woodson, spec. nov., fruticosa volubilis; foliis oppositis longiuscule petiolatis ovatis apice breviter subcaudato-acuminatis basi latiuscule cordatis 7.5–12.0 cm. longis 4.5–7.5 cm. latis membranaceis, nervo medio venisque supra subtusque minute ferrugineo puberulis nervo medio basi supra conspicue glanduligero, caeterumque glabris post exsiccationem saturate atropurpureo-discoloratis, petiolis 2.5–3.0 cm. longis basi fossulatis; inflorescentiis alterno-lateralibus subumbellatis longiuscule pedunculatis paucifloris, pedunculis 5–7 cm. longis ut in ramulis ut videtur semper glabris, pedicellis 1.5–2.5 cm. longis minute ferrugineo-puberulis, bracteis minutis; calycis laciniis ovatis late acutis obtusisve ca. 0.4 cm. longis extus dense minuteque ferrugineo-puberulis

intus glabris glandulas minutas 5 extra-axillares munitis; corolla rotata ca. 3 cm. diametro post exsiccationem saturate livida in vivo ut dicitur fulvida venis multis viridibus, extus minutissime ferrugineo-papillata intus sparse pilosa, lobis late ovatis rotundatis ca. 0.9 cm. longis 0.8 cm. latis patulis, corona 5-gona lobis complicate 3-partitis (vide fig. 1); gynostegio sessile ca. 0.35 cm. diametro antherarum apicibus super stigmatem inflexis post exsiccationem albo-caeruleis con-

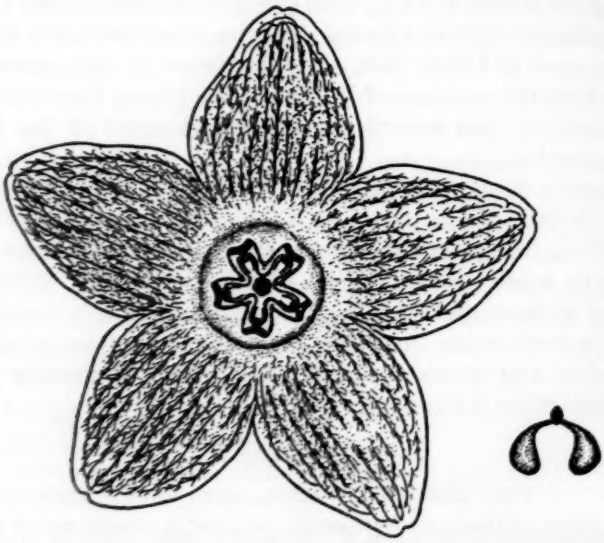

Fig. 1. *Vincetoxicum discolor* Woodson. Corolla (gynostegium removed to show corona) × 3, and pollinia, × 10.

spicuissimis, polliniis late obpyriformibus subhorizontalibus cum caudiculo ca. 0.075 cm. longo, retinaculo sagittato ca. 0.025 cm. longo; ovariis ovoideis minutissime papillatis ca. 0.2 cm. longis; folliculis ignotis.—CHIRIQUÍ: trail from Bambito to Cerro Punta, alt. 1400–2300 m., April 6, 1937, *P. H. Allen 322* (Herb. Missouri Bot. Garden, TYPE).

The literature concerning *Vincetoxicum* and its most closely related allies is so confusing that considerable temerity is nec-

essary for the publication of novelties without an exhaustive revision of the entire complex. Nevertheless it appears to me that *V. discolor* is quite outstanding amongst its congeners as I am acquainted with them. The marked and uniform discoloration of the dried foliage and flowers and the internally pilose corolla are rarities in the genus. One of the most striking features is the waxy pallor of the connivent anther-tips in the center of the darkly discolored, rotate corolla. Corona characters are so difficult to describe in this family that I have resolved, although rather belatedly, in the future always to accompany them with figures.

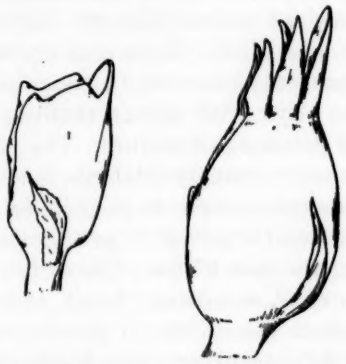

Fig. 2. Calyces of *Conopholis panamensis* Woodson (left) and *C. mexicana* Gray (right). Both figures × 6.

OROBANCHACEAE

Conopholis **panamensis** Woodson, spec. nov.; caulibus simplicibus strobiliformibus dense minuteque papillatis 5–20 cm. altis super radices quercorum parasitis; foliis scariaceis ovatis vel ovato-oblongis acuminatis 1.0–1.7 cm. longis, margine plerumque minute irregulariterque eroso-denticulata; inflorescentiis multifloris subspiciformibus omnino dense minuteque papillatis, bracteis ovatis vel ovato-oblongis acuminatis 0.7–1.0 cm. longis, pedicellis 0.3–0.5 cm. longis, bracteolis 2 oblongo-obovatis obtusis vel apice abrupte mucronato-acuminatis 0.2–0.4 cm. longis; calyce exigue 2-labiato 0.4–0.7 cm.

longo, lobis obtusis plerumque integris sat validis; corolla 1.2–1.6 cm. longa valde 2-labiata; staminis filamenta 1.0–1.5 cm. longa, anthera 0.2 mm. longa basi breviter appendiculata; ovario ovoideo ca. 0.4 mm. longo, stylo haud crasso 1.0–1.4 cm. longo, stigmate capitato; fructibus ovoideis 0.7–1.6 cm. longis, stylo caduco, seminibus fulvis ca. 0.15 cm. longis.—CHIRIQUÍ: trail from Bambito to Cerro Punta, alt. 1400–2300 m., April 6, 1937, *P. H. Allen 305* (Herb. Missouri Bot. Garden, TYPE); on hillside, valley of the upper Río Chiriquí Viejo, vicinity of Monte Lirio, alt. 1300–1900 m., June 27–July 13, 1935, *R. J. Seibert 298* (Herb. Missouri Bot. Garden, CO-TYPE).

Seibert 298 has previously been determined and cited in this series of contributions (Ann. Missouri Bot. Garden **24**: 202. 1937) as *C. americana* Wallr. From both the latter species and from *C. mexicana* Gray, however, *C. panamensis* may be distinguished by its calyx with rather shallow, broadly obtuse lobes and barely bilabiate structure. The calyx of the two former species is very strongly bilabiate in all material that I have seen, and the lobes acute to acuminate and much more deeply cleft. The broad bracts of *C. panamensis* recall those of *C. americana,* but the loss of the style in fruit resembles the similar condition of *C. mexicana.* In all material of the two previously described species that I have seen, the fruit disperses the seed by rupturing very irregularly. In the 38 specimens of *C. panamensis* that I have examined, however, slight pressure causes the fruit to break very regularly into two equal valves. The seeds of *C. panamensis* are about half again as large as those of *C. mexicana* and *C. americana,* and are distinguished also by their dark brown color. *C. panamensis* is common in the vicinity of the Volcán de Chiriquí, and has also been seen by me above Boquete.

RUBIACEAE

(P. C. Standley, Chicago)

GONZALAGUNIA **rosea** Standl., spec. nov. Frutex vel arbuscula 1–4.5 m. alta, ramis gracilibus teretibus brunneis, novellis dense pilis fulvidis vel sordidis subpatentibus vel adpressis

molliter pilosis, internodiis elongatis; stipulae 6–7 mm. longae e basi triangulari longe anguste attenuatae extus dense breviter hispidulae; folia mediocria breviter petiolata membranacea, petiolo ca. 1 cm. longo vel paullo ultra dense hispidulo; lamina lanceolato-oblonga 9–14 cm. longa, 2.5–5 cm. lata longe anguste attenuato-acuminata, basi acuta vel subobtusa, supra sat dense pilis brevibus plerumque patentibus pilosa, subtus fere concolor, molliter patenti-pilosa, costa gracili prominente, nervis lateralibus utroque latere ca. 13 valde obliquis angulo semirecto adscendentibus; inflorescentia anguste thyrsiformi-paniculata spiciformis solemniter elongata, sessilis vel pedunculata, usque 30 cm. longa atque 2.5 cm. lata, laxe multiflora, rhachi dense molliter pilosa, floribus in cymulas plerumque trifloras laxas breviter (vulgo 2–3 mm. longe) pedunculatas dispositis, pedicellis 1–3 mm. longis strigosis, bracteis minutis inconspicuis; hypanthium obovoideum 1 mm. longum strigosum, calyce 1.5–1.8 mm. longo campanulato extus sparse strigoso ad medium 4-lobulato, lobulis late ovatis acutis vel subobtusis suberectis; corolla rosea extus sparse vel dense albo-strigosa, tubo 6–8 mm. longo gracili tereti, lobis vix 2 mm. longis obtusis intus basin versus albo-pilosis; fructus depresso-globosus glabratus 4-coccus 2.5–3 mm. diam.—PANAMÁ: on damp, shaded stream bank, valley of the upper Río Chiriquí Viejo, Provincia de Chiriquí, alt. 1,300–1,900 m., July–Aug., 1937, *Gene & Peggy White 7* (Herb. Field Museum, TYPE; Herb. Missouri Bot. Garden, ISOTYPE).—COSTA RICA: without locality, *C. Hoffmann 534;* forests along Río La Paz de San Ramón, 1,000–1,025 m., *Brenes 4257;* Palmira, 2,100 m., in cloud forest, *Austin Smith 4217;* San Pedro Coronado, 1,400 m., *Manuel Valerio 1644* (all Costa Rican collections in Herb. Field Museum).

Probably a considerable number of Costa Rican specimens in other herbaria are referable to this species, which heretofore has been confused with *G. panamensis* (Cav.) Schum., a common plant in many parts of Central America. The two species are closely related, but *G. panamensis* seems to be constantly separable in the form of the inflorescence, consisting of sessile

cymules in which the flowers are sessile or very shortly pedicellate.

Ixora floribunda (Rich.) Griseb. darien: trail between Yavisa and Pinogana, March 17, 1937 *(Allen 298)*. Previously known from Cuba, El Salvador, Nicaragua, Costa Rica, and the north coast of Colombia. Collected very recently also in Honduras.

Chiococca phaenostemon Schlecht. chiriquí: valley of the upper Río Chiriquí Viejo, alt. 1300–1900 m., July–Aug., 1937 *(Gene & Peggy White 38)*. Common in the mountains of Costa Rica, but previously unrecorded for Panama.

Ravnia triflora Oerst. chiriquí: valley of the upper Río Chiriquí Viejo, alt. 1300–1900 m., July–Aug., 1937 *(Gene & Peggy White 39)*. A handsome epiphyte, quite unlike most Rubiaceae in appearance, more suggestive, in fact, of Gesneriaceae. The genus has previously been known only in Costa Rica.

Guettarda **chiriquensis** Standl., spec. nov. Arbor 8–9-metralis, ramis vetustioribus cinereis subdense lenticellatis obtuse tetragonis crassis, novellis densissime pilis brevibus patentibus fulvis hirtellis, internodiis brevibus; stipulae deciduae ovato-triangulares 12–13 mm. longae, attenuato-acuminatae extus dense fulvo-strigosae; folia mediocria longipetiolata herbacea, petiolo crassiusculo 1.3–4 cm. longo dense pilis patentibus fulvo-piloso; lamina suborbicularis usque late ovalis vel late ovato-ovalis 5.5–12.5 cm. longa 4–9 cm. lata, apice subacuta usque subrotundata et saepe abrupte breviter cuspidato-acuminata, acumine angusto acuminato, basi late rotundata vel subtruncata, supra in sicco viridis sparse breviter hirtella vel glabrata, costa nervisque vix elevatis, subtus paullo pallidior dense pilis brevibus patentibus mollibus fulvidis pilosa, ad costam dense longipilosa, costa crassiuscula elevata, nervis lateralibus utroque latere ca. 11 prominentibus gracilibus valde arcuatis angulo lato, interdum fere recto, divergentibus, venulis arcte parallelis transversis vix prominulis; pedunculi bifurcati, pedunculo crasso 4–15 mm. longo, ramis 1–2.5 cm. longis dense 4–9-floris, floribus arcte sessilibus,

bracteis minutis; hypanthium 2–2.5 mm. longum densissime fulvo-tomentulosum; calyx 1 mm. longus brevissime remote 5-dentatus; corollae tubus 18 mm. longus crassiusculus densissime pilis retrorsis fulvis sericeus, lobis 5 ca. 4 mm. longis, intus glabris profunde lacerato-lobatis atque crispatis; fructus 4-locularis, acute 4-angulatus atque 4-sulcatus 7 mm. longus 5 mm. latus, puberulus.—CHIRIQUÍ: valley of upper Río Chiriquí Viejo, alt. 1,300–1,900 m., July 27, 1937, *Peggy & Gene White 22* (Herb. Field Museum, TYPE; Herb. Missouri Bot. Garden, ISOTYPE).

"Growing in open sunlight. Flowers light purple-white with a faint sweet odor." The most closely related species of North America is *Guettarda crispiflora* Vahl, which occurs in mountain forests of Costa Rica and extends to the Lesser Antilles and Trinidad. That differs from the Panama plant in having much less abundant pubescence on all parts, the pubescence consisting wholly of closely appressed hairs. The leaves of *G. crispiflora,* too, are generally narrower and acuminate or long-acuminate, besides being often acute at the base.

PALICOUREA **panamensis** Standl., spec. nov. Frutex 2–3-metralis, ramis ut videtur viridibus obtuse tetragonis glabris, internodiis elongatis; stipulae in vaginam 5–6 mm. longam truncatam extus interdum sparse strigosam coalitae, lobis lineari-attenuatis erectis 6–8 mm. longis rigidis; folia inter maxima longipetiolata membranacea, petiolo gracili 2–6 cm. longo glabro; lamina oblongo-elliptica 12–23 cm. longa 4.5–11 cm. lata, apice subobtusa atque abrupte breviter acuminata, acumine obtuso anguste triangulari paullo ultra 1 cm. longo, basi acuta, supra in sicco viridis glabra, costa nervisque prominulis, subtus multo pallidior, ad costam gracilem prominentem sparse breviter adpresso-pilosula aliter glabra, nervis lateralibus utroque latere ca. 18 tenerrimis prominentibus arcuatis angulo lato fere recto divergentibus juxta marginem arcuato-conjunctis, venulis inconspicuis laxe reticulatis; inflorescentia terminalis anguste thyrsoideo-paniculata erecta 4–5.5 cm. longe pedunculata, ca. 14 cm. longa atque basi 8 cm. lata, laxe multiflora, ramis primariis divaricatis glabris basi bracteatis,

floribus cymosis, bracteis oblongis vel lanceolatis usque 4 mm. longis acutis vel obtusis ciliatis, pedicellis gracilibus rectis glabris usque 7 mm. longis; fructus juvenilis subglobosus basi rotundatus 3 mm. longus glaber, sepalis persistentibus ovali-ovatis viridibus acutis vel acuminatis usque 2 mm. longis.—CHIRIQUÍ: valley of upper Río Chiriquí Viejo, alt. 1,300–1,900 m., July–Aug., 1937, *Gene & Peggy White 14* (Herb. Field Museum, TYPE; Herb. Missouri Bot. Garden, ISOTYPE).

"Stems bright purple; fruit light green with dark green stripes. Growing in shade." The mature fruits doubtless are substantially larger than the description indicates. The branches are hollow. Like most *Palicourea* species, this has no outstanding characters, but it is unlike any other species known from Panama or adjacent regions.

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